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Guest Editors: Sharad Nath Bhattacharya and Tracy (Kun) Wang

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About the Journal

IIMS Journal of Management Science is the scholarly open access journal of the Indian Institute of Management Shillong that publishes research contributions in all areas of management and its allied discipline since 2010. It follows a double blind peer-review process and publishes two issues a year. While submissions from all management domains and their allied disciplines are welcome, the journal encourages articles with cross-functional managerial implications.

The journal looks for original and insightful research articles that create differential research traditions to shed new evidence on contemporary challenges faced by management practitioners, policymakers, academicians, and others. The journal envisages publishing rigorous research output backed by qualitative or quantitative methods. The articles that establish the intuition, argument, and implications using clear and concise English and improve our understanding of the management theory and practice knowledge are preferred. All contributions should be well written in English and supported by either original/empirical data or a well-justified theoretical or mathematical model.

Aims and Scope

IIMS Journal of Management Science is an open-access journal that publishes original research and review articles from all functional areas of business management. It follows a double-blind peer review policy.

The articles from all domains of business management, including (but not limited to): accounting, analytics, banking, communications, economics, finance, industrial relations, information systems, marketing, operations and supply chain management, organisational behaviour, organisational development, human resources management, strategy, sustainability & liberal studies, innovation, entrepreneurship, public policy, international business and corporate social responsibility are welcome.

Contributions with a rigorous analysis of economic, social, political, sustainability, and other factors relevant to management theory, practice, or policy are well received. The journal encourages authors to submit articles with cross-functional implications that provide new insights on contemporary issues faced by management practitioners, firms, societies, policymakers, academicians, and others.

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IIMS Journal of Management Science

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Special Issue: Climate Concern and Corporate Governance

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Climate Concern and Corporate Governance

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This special issue focuses on the pivotal role of corporate governance in addressing the challenges of climate change, a topic that has increasingly gained attention in the realms of sustainability and business management. Global issues stemming from climate change, such as severe impacts on ecosystems, economies, and human health, are driven by phenomena like rising temperatures, extreme weather, sea-level rise, and loss of biodiversity. These environmental changes aggravate existing social and economic inequalities, underscoring the urgent need for effective and prompt responses.

Paul Shrivastava, in his article "*Timely Corporate Governance Actions for Addressing Climate Change*," highlighted the impact of climate changes on ecosystems, economies, markets, and businesses, bringing out the need to establish meaningful and measurable governance to address these impacts. He opines that while bold actions aimed at improving corporate governance and addressing climate issues quickly may present difficult trade-offs, they also offer significant synergies that can lead to long-term corporate success.

Ricardo T. Calderon, Amulya Gurtu, and Michael A. Holly, in their research article "*Exploring Transparency-Sustainability Linkage: Analysis of CSR Disclosures*," highlighted the role of CSR reporting as a strategy for communicating sustainability data to stakeholders. However, they noted that this approach is not free of biases due to its voluntary nature. Their research shows a lack of correlation between observable levels of transparency and third-party sustainability rankings amongst the sustainability elite of the corporate world. They conclude that sustainability determined by self-reported data cannot accurately predict or assume the reporter's transparency.

Ronald Ebenezer Essel, in his article "*Corporate Social Responsibility – Performance Nexus: The Moderating Role of Board Size, Board Independence, and Board Gender Diversity in Ghana*," discusses the moderating role of the size of the board, its independence, and the diversity of gender among board members on the CSR-firm performance link in a Ghanaian context. The author concludes that businesses must ensure that the board has fair representation of outside/non-executive directors and is well structured in terms of size and gender diversity.

Nikhil Chandra Shil and Anup Chowdhury, in their research article "*Pathways to Consolidate Corporate Governance by Incorporating Gaps in Management Accounting Practices: An Integrative Literature Review Research Approach*," emphasize the critical attention corporate governance receives due to potential

threats to effective management and trace the historical context back to the Enron and Arthur Anderson scandals. They argue for the vital contribution of management accountants in strengthening governance. This article fills a gap in the existing literature and suggests avenues for further research.

K M Baharul Islam, Archan Mitra, Asif Khan, and Sayani Das, in their research article "*Toward Sustainable Climate Governance: A Case Study of Risk Assessment and Management in Kullu, Himachal Pradesh*," study the complex interaction between historical climate patterns, existing vulnerabilities, and potential approaches for mitigating risks and enhancing governance. Their findings call for effective water management practices and resilient agricultural strategies while emphasizing the significance of improving early warning systems and promoting community-centred initiatives.

Gaurav Talwar and Sabyasachi Sinha, in their research article "*How Fintechs are Aiding the Strategic Renewal of Banking and Financial Services When Climate and Corporate Governance are Centre Stage?*" show that the collaboration of banks and financial institutions with fintech firms is enabling them to rejuvenate, regain customers, and improve growth and margins through data insights, streamlined operations, and quicker responses to customer needs, while also better managing uncertainties and complexities in climate and corporate governance.

This special issue makes important strides in addressing critical concerns in the realms of climate change and corporate governance. It contributes to the body of research crucial for developing a comprehensive understanding and effective execution of governance strategies to address the increasing challenges posed by climate change. We hope this collection inspires further research and action in these crucial areas.

Sharad Nath Bhattacharya
IIM Shillong

Tracy (Kun) Wang
Australian National University
Guest editors

Timely Corporate Governance Actions for Addressing Climate Change

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Paul Shrivastava[1,2]

This Special Issue on Climate Concern and Corporate Governance is indeed very timely and important. It acknowledges that climate change poses many complicated global-scale problems to ecosystems, economies, markets and businesses. Climate induced rising temperatures, and consequent melting ice, extreme weather events, rising sea levels and biodiversity loss will disrupt businesses and livelihoods. In the words of the editors, 'Climate change impairs social and economic inequities, heightening the need for *quick action*' [emphasis added].

I want to address what does 'quick action' mean in this context, and what sort of corporate governance could enable it. Earth's climate has been on a dangerous trajectory for the past century and was first brought to global attention at the 1972 United Nations Conference on the Human Environment in Stockholm. As early as 1990, the Intergovernmental Panel on Climate Change (IPCC), in its First Assessment Report, highlighted the dire global consequences of climate change. IPCC has issued five additional assessment reports to date, each report has confirmed the dire and growing deterioration in the Earth's climate. These have been confirmed by additional scientific reports by the National Academy of Sciences of many nations.

There is scientific consensus that climate change is caused by excessive carbon in the Earth's atmosphere which traps heat and causes global warming. Warming the Earth melts polar ice and permafrost, leading to the release of additional carbon, sea level rise and biodiversity loss. Historically, for the past several thousand years before the discovery of fossil fuels, the amount of carbon in the Earth's

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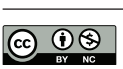

atmosphere was stable between 190 parts per million (ppm) to 270 ppm. Carbon dioxide concentration in Earth's atmosphere, by 1959, had grown to 316 ppm. By 2022, carbon concentrations had risen to 418.5 ppm, and in 2023 as high as 423 ppm have been recorded in places.

As Figure 1 shows, we are still going in the wrong direction with regard to carbon in Earth's atmosphere. So *quick action* now means 'acting immediately and accomplishing transition to zero carbon within the next decade'. Climate harm is already happening as evidenced by more frequent extreme heat events, increasing floods and wildfires and rising global temperatures. The Catastrophic impact of climate change may still be avertable by reducing carbon emissions starting now. Corporations as the main engines of our global economy are at the heart of controlling carbon and decarbonizing our economy.

Corporate actions are urgently needed to control many aspects of global carbon emissions. A key source of atmospheric carbon is fossil fuels. The global economy is still over 80% dependent on fossil fuels which are produced and used by corporations of many types to produce goods and services. Corporations prospect for fossil resources, extract them, refine them, create byproducts, sell them, use them, recycle them, and in the process, they release giga tons of carbon into the atmosphere. At every stage of the carbon cycle, corporations can directly influence carbon leaks and emissions. Corporations can stop climate change. They can

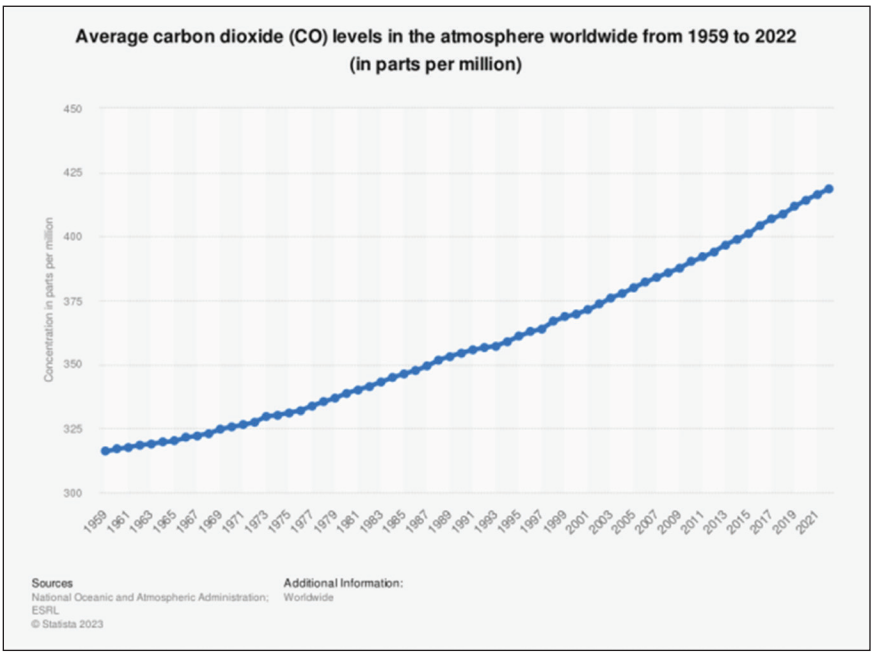

Figure 1. Carbon Levels in the Atmosphere.

transition from fossil fuels to renewable fuels, using proven technologies and financing arrangements.

Fossil fuel companies are planning on transitioning to renewables and blue hydrogen and reducing carbon emissions, but their visions for transition are over multiple decades. For example, Aramco, the world's largest carbon company, in its 2022 Annual Sustainability Report expressed its 'ambition to reduce our emissions by 52 MMt Co_2e and lower our upstream carbon intensity by 15% by 2035'. At this rate, the company will take half a century or more to reach zero carbon. This is action in the right direction, but this is not what I would consider 'quick action'. Other oil majors made ambitious promises for carbon reduction before COVID-19. However, they are walking back on those promises. In February 2023, BP scaled back an earlier goal of lowering its emissions by 35% by 2030 to a new goal now of cutting back carbon by 20% to 30%. ExxonMobil withdrew funding for a project to use algae to create low-carbon fuel. Also, Shell retracted an increase in its investments in renewable energy in 2023. Overall, the fossil fuel industry is slowing down its commitment to carbon reduction—this is not quick action (Noor, 2023).

In addition to reducing carbon emissions, corporate actions are also needed to create climate-resilient communities that can adapt to climate patterns that are already in play. Extreme weather events are causing damage at large scale and impacting many sectors of the economy. Climate is now responsible for 5 million excess deaths worldwide each year (Zhao et al., 2021). The insurance industry is paying out increasingly large damages each year for casualty and property insurance losses. In the State of Florida, nine insurance companies have stopped underwriting insurance because of past losses. In coastal areas, insurance prices are rising to unaffordable levels making communities less resilient (Cremades et al., 2017).

Good corporate governance is central to making corporations act on climate change. As hierarchically structured entities, the vision and ability to act are fundamentally determined by corporate governance arrangements. Despite our best intentions to reverse climate changes, most corporate governance initiatives have made only minor incremental voluntary changes. This has resulted in too little governance to control carbon emissions and a lack of accountability for climate change by companies. Incremental changes in governance are not likely to work in a timely manner to avert climate catastrophe, because they are simply too small. Voluntary operational changes are not likely to be successful since they try to preserve core business processes that need to be transformed. Corporate transformation to mitigate and adapt to climate change will require serious governance changes.

Let me propose a few bold actions that can improve corporate governance and address climate issues 'quickly'. We need meaningful governance with measurable results. Companies can move towards such responsive governance by using B Corp Form, Environment, Social and Governance (ESG) Investing, and adopting Sustainability Standards.

B Corp Form

The trade-off in balancing profit with ethical purpose at the governance level is addressed by the B Corp or benefits corporation movement. It was initiated by the non-profit organization B Lab founded in 2006. It seeks to transform the global economy to 'benefit all people, communities and the planet' by reorienting the very purpose of businesses towards sustainability. B Lab assesses and certifies companies that agree to follow guidelines for managing in ethically, socially and ecologically responsible ways. Companies gain B Corp status based on how they score out of 200 points on a variety of governance metrics, treatment of workers and customers and community and environmental programs. Companies must legally embed the B Corp commitment into their mission statement or get re-incorporated as a B Corp (a legal structure that formally embeds societal obligations into the company's goals). Globally, there are about 6,500 certified B Corp, including Ben & Jerry's Ice Cream owned by Unilever, Nespresso owned by Nestle, subsidiaries of French food group Danone, outerwear brand Patagonia, and Natura, the Brazilian cosmetics and fragrance maker that owns The Body Shop and Aesop.

Despite the popularity and growth of B Corps, they have not yet become mainstream. The current norm remains equity ownership defining governance priorities. In most companies, governance practices privilege investor priorities of maximizing profitability, paying out dividends and boosting stock value. Governance could be made more genuinely more multiparty by having employees, communities, climate science, consumers and other stakeholders be equity holders. This would result in balanced multiparty governance regimes to emerge, more capable of handling climate challenges in a balanced way, than one-sided (pro-investor) governance structures prevailing today. Employee Stock Ownership plans have been adopted by many companies to reward, motivate and empower employees. They could serve as a model for bringing in other stakeholders into ownership and governance arrangements.

ESG Investing

In the past decade, ESG Investing has become popular among investors and investment management companies, as a way to address climate change and sustainability concerns. Investors are seeking opportunities to invest in sustainable and ecologically responsible companies. Investment companies are assessing and factoring ESG risks into investment decisions to do more 'sustainable investing'. BlackRock Investments, the world's largest investing company pioneered the practice of ESG investing by incorporating financially material ESG data into firmwide processes, with the goal of enhancing risk-adjusted returns of clients' portfolios. They apply this universally in all portfolios, 'regardless of whether a fund or strategy has a sustainable or ESG-specific objective' (BlackRock, 2023).

Corporations have responded to demands for ESG improvements by reducing their environmental impacts, boosting corporate social responsibility initiatives and improving governance mechanisms. Most large corporations issue annual sustainability reports and use sustainability branding in their PR and communications outreach to customers and investors. Companies have adopted differing and non-uniform formats in reporting climate and sustainability data. So, it is hard to interpret and compare across companies. In general, corporate sustainability reports show year-by-year improvements in most sustainability parameters, such as carbon emissions, recycling efforts, safety and community engagement. Yet, at the global level, carbon in the Earth's atmosphere has continued to rise each year, as Figure 1 shows. So, there are concerns of greenwashing on the part of corporations.

Sustainability Standards

Corporate governance practices need to be fair and equitable across companies, industries and countries. For this, we need standards for climate and sustainability-related strategic and operating parameters and their reporting. The Global Reporting Initiative, founded in 1997, has evolved to provide uniform reporting guidelines. The ISO 14000 standard provides standards on some environmental and sustainability parameters. The newly created Sustainability Accounting Standards Board recently released its S1 and S2 standards in July 2023. They provide a common language, framework and variables for sustainability reporting by international corporations.

Sustainability governance practices are also advancing with a series of EU legislations over the past decade. The thrust of these legislations is on long-term transparency measures and on providing shareholders and stakeholders with timely information. This Shareholder Rights Directive was adopted in 2017. The Corporate Sustainability Reporting Directive revises corporate obligations and creates new ones on company disclosure and corporate governance. The November 2022 Directive on corporate boards' gender balance harmonizes and improves Member State practices regarding gender representation on company boards. Forthcoming (by 2026) is the directive on corporate sustainability due diligence mandates corporate sustainability due diligence duty to address negative human rights and environmental impacts by integrating due diligence into corporate policies and measures, directors' duties and remuneration (Huttunen, 2023).

To achieve meaningful governance over climate actions with measurable results, companies need to combine these above tools and other emerging ones. There are hard trade-offs that will need to be made. However, there are also strong synergies that could be beneficial for the long-term flourishing of companies. I hope articles in this Special Issue will provide guidance to make corporate governance truly effective.

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Article

Exploring Transparency–Sustainability Linkage: Analysis of CSR Disclosures

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Ricardo T. Calderon[1], Amulya Gurtu[2] and Michael A. Holly[3]

Abstract

Corporate social responsibility (CSR) reporting is a strategy for communicating sustainability data to stakeholders. Sharing data with stakeholders is the key to the effectiveness and validity of CSR. However, the often-voluntary nature of CSR disclosure reporting results in perceived bias. Consequently, the relationship between CSR disclosure transparency and the sustainable character of a company remains unclear. The article suggests a methodology for evaluating corporate transparency through *t*-value analysis. The *t*-value analysis of CSR reports from Corporate Knights' 2021 Global 100 Most Sustainable Corporations quantifies the total number of negative disclosures in a CSR report. This research shows a lack of correlation (*p* value = .805) between observable levels of transparency and third-party sustainability rankings amongst the sustainability elite of the corporate world.

Keywords

Corporate social responsibility, CSR, transparency, environment, standards, regulation

JEL Classification: G38

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Introduction

Sustainable products have growth rates nearly six times that of non-sustainable options (Kronthal-Sacco & Whelan, 2019), signalling a strong interest amongst consumers and stakeholder groups in evaluating the impact of corporate production and operation practices. Corporate social responsibility (CSR) is built on the stakeholder theory and has become an influential model for evaluating the role of modern corporations. 'Honesty' is a corporate attribute, valued highly enough by consumers that they are willing to pay a premium for products and services rendered by such corporations (Nielsen, 2015; O'Connor & Meister, 2008). Consequently, corporations are compelled to communicate and display a virtue of trustworthiness, genuine or otherwise, towards these stakeholder groups to capitalize on consumers' moral concerns. In an attempt to allay these concerns, several independent agencies have introduced annual corporate sustainability rankings designed to demonstrate sustainable performance using data gathered from questionnaires (S&P Global, 2020), publicly available information (i.e., CSR reports) (Corporate Knights, 2020) and other forms of self-published data.

Large corporations' annual sustainability reports communicate CSR data and summarize environmental and social initiatives and their impacts. KPMG International found that 96% of the G250 companies and 80% of the N100 reported sustainability data. As CSR reporting practices become common, efforts to legitimize the data increase. Over 50% of G250 and N100 companies pursue third-party assurance for CSR data (Threlfall et al., 2020). The Global Reporting Initiative (GRI) is the primary standard incorporated in over two-thirds of N100 and G250 companies (Threlfall et al., 2020).

Studies and observations suggest that CSR strategies are most effectively used as a risk management tool (Husted, 2005; Kytle & Ruggie, 2005). Research shows that strong CSR provides a competitive edge and is associated with higher returns, increased market value and greater customer loyalty (Burke & Logsdon, 1996; Chen et al., 2015; Gurtu et al., 2019; Loh et al., 2017; Lougee & Wallace, 2008; Orlitzky et al., 2003; Webley & More, 2003). However, CSR reporting is not without flaws. The biggest flaw in CSR reporting is that it is, in most cases, voluntary, and this can result in a corporation anecdotally espousing its trustworthiness without disclosing relevant data (Swift, 2001). The disclosure of CSR data has thus been criticized as 'a la carte' reporting, allowing corporations to choose the information that will best placate stakeholders (Shnayder et al., 2015; Timothy Coombs et al., 2013). Voluntary Disclosure Theory and Legitimacy Theory suggest that corporations should strive to reduce information asymmetries between themselves and their stakeholders (Deegan, 2002; Dye, 1985; Suchman, 1995; Verrecchia, 1983). The GRI and similar reporting standards aim to reduce this data imbalance through transparent disclosures (Philippe & Durand, 2011). Increased transparency is shown to reduce data asymmetries and empower stakeholders (Dhaliwal et al., 2014; Dingwerth & Eichinger, 2010; Hąbek & Wolniak, 2016). However, risk management efforts may clash with increased transparency; studies show a CSR reporting deficiency amongst companies, characterized by a hesitancy to report anti-corruption, environmental and social data (Kühn et al., 2014; Tamimi & Sebastianelli, 2017; Transparency International, 2009). Indeed, corporations

appear to favour reporting beneficial information over harmful, despite the observation that disclosing negative data may enhance stakeholder trust (Hahn & Lülfs, 2013; Holder-Webb et al., 2008; Lougee & Wallace, 2008). Leadership teams worldwide struggle to resolve the conflict between securing stakeholder trust via legitimizing behaviour and managing risk. Simultaneously, stakeholder demand for transparency and wariness of the so-called greenwashing continues to increase. While this conflict is well documented, it cannot be resolved without an objective and consistent tool for measuring disclosure transparency. Our research seeks to create such a tool.

We are not aware of any research that has been done on developing a metric for transparency in CSR reports; however, two notable attempts have been made to measure transparency in other contexts. Rawlins (2008) used a survey-based exploratory model and determined that the transparency metric (T-metric) must be prepared from those stakeholders' perspectives who do not control the data. The survey comprised 21 transparency-related traits, each rated on a 7-point scale. The trait-based nature of this metric results in an assessment of the quality of overall organizational transparency. The survey provides a valuable transparency profile for evaluating stakeholder groups' perceptions. The second example is the HRV Index (HRV is the first letter of Hollyer, Rosendorff & Vreeland). This metric explored the transparency quality of aggregate economic data from 125 national governments (Hollyer et al., 2017). Data collected for the index include 240 transparency indicators derived from the World Bank's World Development Indicators. The HRV Index differs from the Rawlins Survey because its criteria are highly objective. Further, the HRV Index treats transparency as a predictor of the presence or absence of data. We developed a T-metric derived from the stakeholder perspective of the Rawlins Survey and the transparency definition of the HRV Index to meet the need for a CSR T-metric. The new metric will facilitate the evaluation of company transparency and investigate the relationship between transparency and sustainability rankings.

Methodology

The quality of the 'trustworthiness' of a corporation is challenging to measure. Assuming that a trustworthy corporation is inherently honest, it must transparently disclose positive and negative CSR data more than an untrustworthy corporation. The T-metric developed for this research is designed to quantify the total number of negative disclosures in a CSR report.

The T-metric comprises 24 disclosure categories derived from the GRI's 'comprehensive' disclosures. Appendix A displays these 24 disclosure categories with their alphabetic reference codes. Each CSR report is investigated for the presence of disclosures for each category using the methodology of Hollyer et al., (2017). They asserted that transparency is predictive of the 'presence or missingness' of data. The quality of any disclosure that is present is also analysed. Scoring for each disclosure category is accomplished using the simplified matrix in Figure 1.

The score values indicate the extent of the availability of data. 'Full' means complete disclosures on topics with figures, data and/or incidents provided, where applicable, or disclosure that no incidents occurred during the reporting period.

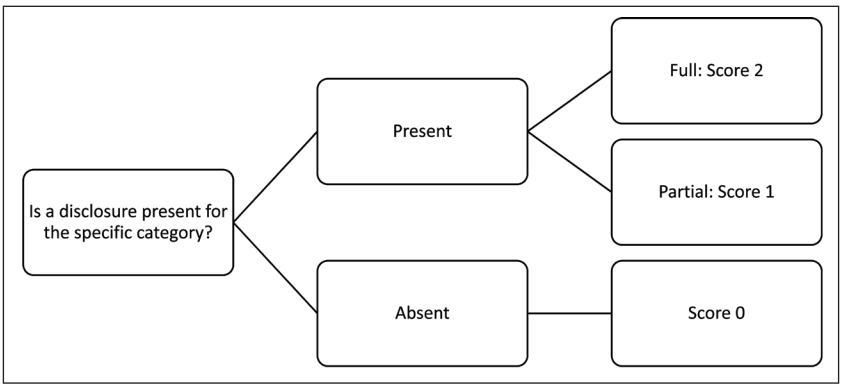

Figure 1. Scoring Model for T-metric.

'Partial' refers to topics indicating awareness of the issue but no specific disclosure. 'Absent' indicates a lack of any disclosure or topic acknowledgement. This simplified 'Full', 'Partial' and 'Absent' framework maintains an objective reading of disclosures. The scoring considers the inclusion of a category but not the quality or nature, that is, beneficial or harmful data, maintaining a stakeholder perspective (Rawlins, 2008). Therefore, publicly available CSR reports were used for the analyses. Disclosures not included within the primary CSR report are treated as 25% less significant (applying a 0.75 penalty) than an identical disclosure in the main report by the metric. Adjustments made were meant to penalize corporate obfuscation to distract stakeholders. Our approach assumes that data not presented in CSR reports are less visible and thus less significant from a stakeholder perspective.

After scoring CSR reports, the new transparency ranking (T-ranking) was calculated by applying a weight to the raw *t*-values. Before weight calculations, each score was multiplied by 50 to achieve integer scores between 0 and 100. The weightage scheme was then applied to the new values (0, 100 or 500). The weightage system was used because less common disclosures are more valuable than common disclosures. For example, if 80% of reports disclose data for Category B, and only 10% disclose for Category R, then Category R scored higher than Category B. Equation 1 shows the calculations for category weight.

$$\text{Category weight} = \left\{ \left(\frac{1}{\frac{(F+P)}{2}} \right) \times 100 \right\} \times C \tag{1}$$

Where, F = the number of full disclosures, P = the number of partial disclosures and $C = 0.84$. C is a constant that ensures all weights are equivalent to 100 and restores the traditional 0 to 100 scoring scale. The value of constant C has been derived from converting the total category weight (118) to 100, that is, $C = 100/118 = 0.84$. In other words, multiplying each weight by C makes the total weight 100. This weight

ensures discrete T-ranking and provides a unique score for reports. The raw, weighted and unweighted *t*-values were then used for statistical analyses.

The *t*-value analysis was performed on the CSR reports of Corporate Knights' (CK) 2021 Global 100 Most Sustainable Corporations in the World ranking (Corporate Knights, 2021). The data were collected from each listed company's CSR (or equivalent) report. Each company was evaluated by CK based on 21 key performance indicators (KPIs), reflecting sustainable business practices divided amongst five categories: (a) Resource management (including energy, water, waste GHG and other pollutant emissions data), (b) financial management (including pay ratio, R&D, tax and supplier data), (c) employee management (including injury/fatality/turnover and gender equality data), (d) a measure of the total sanction deductions over the relevant reporting period and (e) a measure of revenue from clean sources.

Companies are not required to disclose all 21 KPIs. Only industry-specific KPIs, as per CK's weighting system, are reported. However, companies are screened and removed from consideration for failing to meet the following three requirements: (a) Disclose at least 75% of the KPIs deemed relevant to their industry, (b) demonstrate a minimum level of financial strength, as determined by the Piotroski F-score (Piotroski, 2000) and (c) abstention from 'sin' industries or services that are counterproductive to sustainable development. Notably, demographic limitations to CK's sampling will carry over to the data gathered from the T-metric. All analysed companies exhibit a minimum disclosure behaviour, and those experiencing financial instability and companies from 'sin' industries are excluded. Finally, each corporation was given a percentage score based on CK's analysis of the relevant KPIs, which is used to establish the overall ranking.

When choosing a data source supporting the research goals, it was important to analyse a sample set of companies that had already been independently qualified as sustainable. While several other third-party rankings are available, such as the S&P Global Sustainability Yearbook and Barron's Top Sustainable Companies list, ultimately, the CK list was selected based on the transparency and clarity of its published methodology. The CK's data is general and collected from international corporations across all sectors.

In addition to the *t*-values, the statistical analysis of supplemental company characteristics (e.g., firm size, the usage of reporting standards and the reporting conditions of each corporation's home nation) was included to help describe the T-S linkage. Microsoft Excel and R4.1.0 (R Core Team, 2021) software were used for analysis.

Results

After analysing each CSR report using the T-metric, the weighted *t*-values were used to compile an alternate T-ranking, displayed in Table 1. The distribution of changes in rank (Rank Δ) is normally distributed (Figure 2).

The data did not show any correlation between T-rank and CK rank. The correlation between the CK percentage scores and the raw *t*-value (0.13), weighted *t*-value (0.12) and unweighted *t*-value (0.09) were slightly higher. However, a strong correlation between them remains elusive.

Table 1. Ranking Table.

Company Code (CK Rank)	T-Rank	Rank Δ	Company Code (CK Rank)	T-Rank	Rank Δ	Company Code (CK Rank)	T-Rank	Rank Δ
030	1	29	091	35	56	085	69	16
009	2	7	072	36	36	064	70	–6
036	3	33	015	37	–22	079	71	8
027	4	23	028	38	–10	016	72	–56
017	5	12	043	39	4	082	73	9
008	6	2	014	40	–26	037	74	–37
099	7	92	089	41	48	001	75	–74
093	8	85	034	42	–8	029	76	–47
070	9	61	058	43	15	075	77	–2
094	10	84	086	44	42	055	78	–23
018	11	7	041	45	–4	090	79	11
013	12	1	050	46	4	022	80	–58
019	13	6	047	47	0	073	81	–8
059	14	45	065	48	17	020	82	–62
080	15	65	096	49	47	088	83	5
024	16	8	087	50	37	071	84	–13
033	17	16	081	51	30	042	85	–43
057	18	39	066	52	14	007	86	–79
025	19	6	095	53	42	054	87	–33
039	20	19	077	54	23	044	88	–44
061	21	40	097	55	42	069	89	–20
012	22	–10	068	56	12	038	90	–52
063	23	40	040	57	–17	056	91	–35
003	24	–21	048	58	–10	002	92	–90
011	25	–14	005	59	–54	074	93	–19
083	26	57	051	60	–9	023	94	–71
010	27	–17	004	61	–57	098	95	3
078	28	50	021	62	–41	060	96	–36
076	29	47	032	63	–31	062	97	–35
100	30	70	092	64	28	026	98	–72
035	31	4	005	65	–60	031	99	–68
053	32	21	046	66	–20	049	100	–51
045	33	12	052	67	–15			
067	34	33	084	68	16			

Three data sets were obtained from the T-metric report analysis: The raw *t*-value, the unweighted *t*-value (with penalties and score conversions but without the weight) and the weighted *t*-value (all penalties, conversions and calculations). Pearson Correlation Coefficient (PCC) analyses of these three datasets revealed a strong correlation amongst all three, and analysis of the distributions for the three values (Figure 3) provides further insight. All three data sets were normally distributed. The weighted and unweighted *t*-values did not exhibit a significant advantage over the raw scores in the analysis. The weighted *t*-value is the preferential dataset for establishing the T-ranking as it allows for discrete ranks.

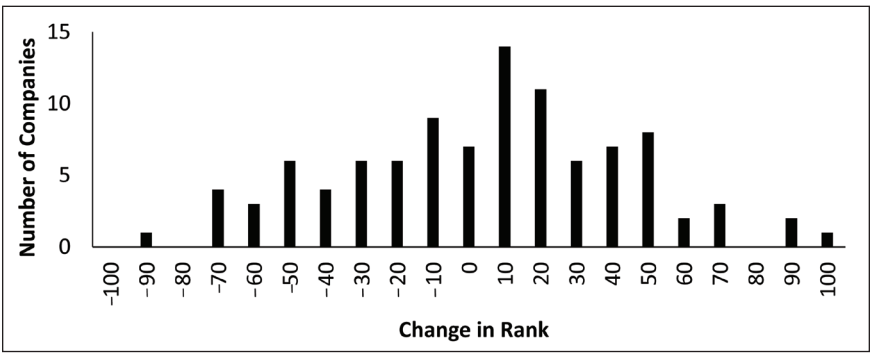

Figure 2. Rank Change Distribution (via weighted t-value).

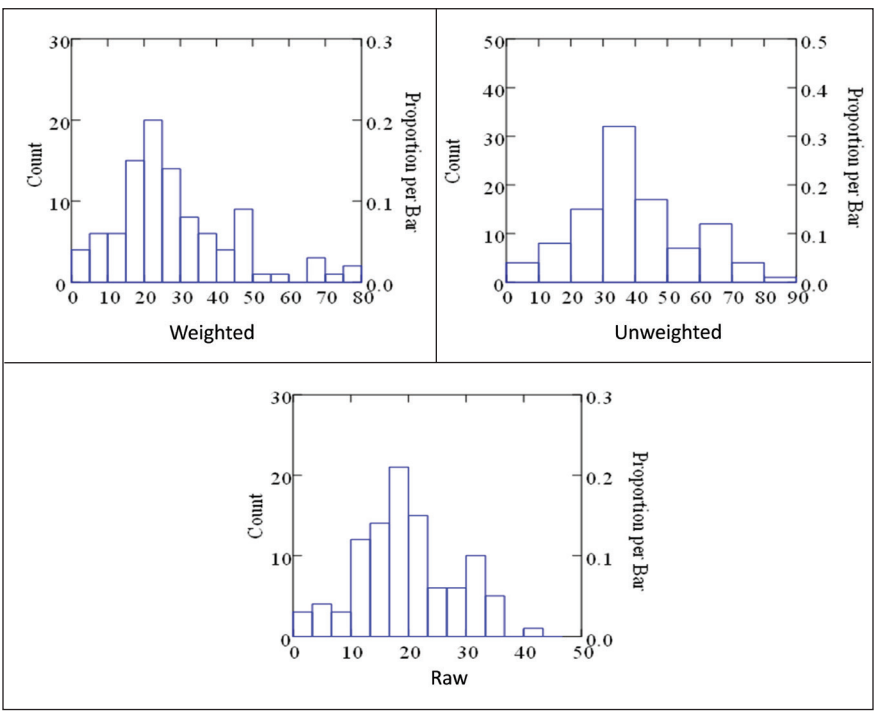

Figure 3. Weighted, Unweighted and Raw *t*-value Distribution.

Eight non-repeating scores out of one hundred in raw *t*-value were observed, making it inefficient to establish consecutive ranks. However, PCC and distribution analysis revealed that all three are similar to the raw *t*-value. Therefore, raw *t*-values were used for further analyses.

Variable analysis was performed to identify statistically significant relationships that may predict the raw *t*-value. Two variables from each CSR report were analysed: *Total equity* and *mandatory/voluntary reporting.* Total equity (in millions of USD) is used to estimate the total financial value of the company.

This data was mined from each reporter's financial filings and confirmed on the *Wall Street Journal*'s market analysis site (WSJ, 2021). The distribution of equity amongst the companies is given in Figure 4. Firm value, across all samples, is clustered under 2 billion USD and 65% of all reporters fall under this category. Firm value is limited by the financial screenings of the original CK sample set.

Regression analysis of total equity and raw *t*-value reveals an absence of any significant relationship, as visualized in Figure 5. An analysis of variance (ANOVA) test confirms this with a *p* value calculated at 0.805 (Table 2). There is

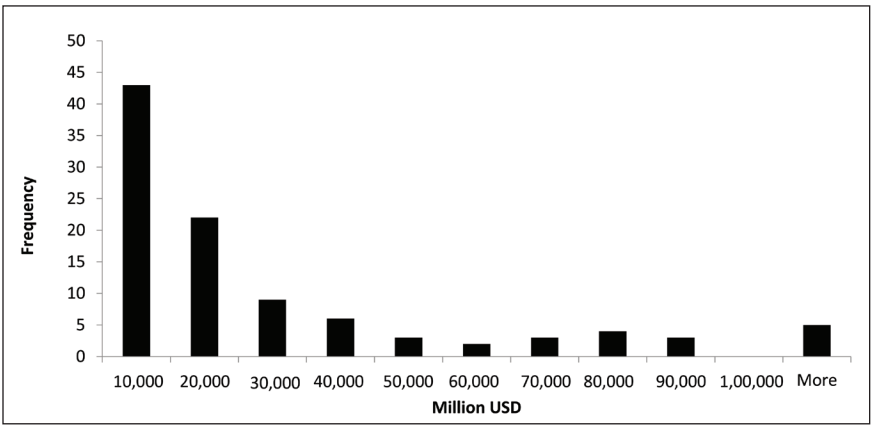

Figure 4. Equity Distribution of the Data Set.

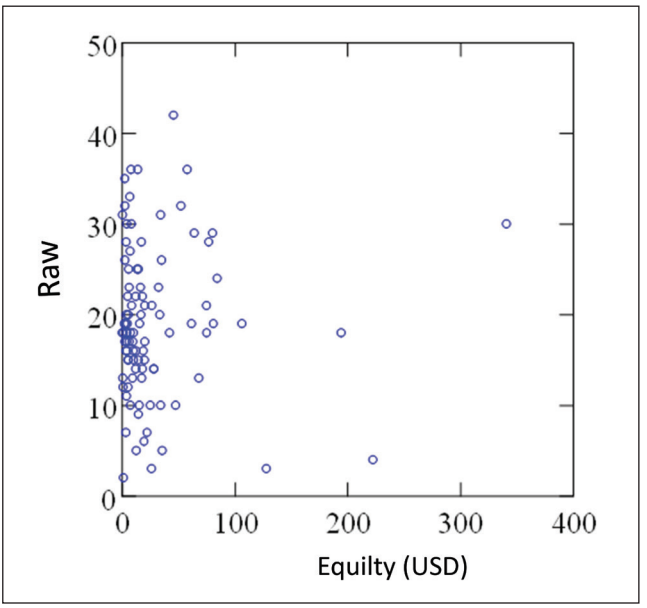

Figure 5. Equity/Raw *t*-value Scatterplot.

Table 2. ANOVA of Equity/Raw and Mandatory-Voluntary/Raw.

		Sum-of-Squares	*df*	Mean-Square	*f*-Ratio	*p* Value
Equity vs raw *t*-value	Regression	4.30568	1	4.30568	0.06128	.80503
	Residual	6605.02766	94	70.26625		
Reporting status vs raw *t*-value	Voluntary	242.88561	1	242.88561	3.40052	.06820
	Error	6999.75439	98	71.42607		

no observable relationship between the firm value and their level of transparency in this sampling. PCC analysis of both equity and firm size seems to confirm this. The correlations for these two values are 0.032 and –0.087, respectively, indicating very little correlation (a PCC of 0.0 indicates no correlation). However, the limitations of the sample size and the equity distribution preclude this research from making concrete observations regarding the relationship between these two variables and *t*-values.

ANOVA analysis of the variable mandatory/voluntary status (Table 2) suggests a relationship between the raw *t*-values and legal reporting status. However, the data falls short of establishing a statistical relationship (*p* value of .06820). The mean raw *t*-value for mandatory reports is 22.33, whereas the voluntary reports achieve a mean of 18.68. Mandatory reporters appear to have a transparency advantage over voluntary reporters within the sample population.

Discussion

In relation to our first objective, the T-metric is an appropriate and effective metric that objectively measures the transparency of a CSR report. As a simple metric based on the objective presence or absence of specific disclosure categories (assuming that transparency tends to provide unaltered and honest data), T-metric accomplishes this measurement, at least amongst the disclosure categories. However, the disclosure categories evaluated (Appendix A) are by no means total or complete. The list could easily be expanded to include more disclosures or refined to suit the needs of the specific sample demographic.

A key and obvious criticism of these disclosures is their direct derivation from the GRI standard. A reasonable observer would be expected to see a bias towards GRI reporters within the *t*-value data; however, the ubiquitous use of the GRI standard amongst the reports sampled somewhat clouds this issue. 67% of the reports in the source data (CK Ranking) utilize GRI standards in some respect. With the entire sample demographic being biased towards this variable, a similar bias in the T-metric seems unavoidable. Future research may modify the metric to distance it from this bias. However, this may prove not easy in practice, considering the GRI's growing presence as the industry standard for sustainability reporting. The GRI's list of disclosures has been developed over several years and continues to grow, expanding its scope and applicability. A disclosure-based T-metric developed independently will likely overlap in its content with the GRI

through no fault of the researchers. Similar to the HRV Index's reliance on the World Bank indicators, any metric designed to value the transparency of disclosures objectively must establish specific criteria to analyse (Hollyer et al., 2017). Establishing criteria uniquely distinguishable from those determined by existing monitoring firms i.e., GRI, Sustainability Accounting Standards Board (SASB) or World Bank may not be a realistically achievable goal. Further work is required to determine whether a similar bias is avoidable.

Further limitations to the T-metric results concern the sample set itself: the CK Ranking list. The 'Result' section describes financial and industry-specific screening of potential CK Ranking candidates, eliminating firms that do not pass these criteria. Such samples are, by extension, eliminated from consideration in this research. However, this limitation is somewhat required during this exploratory work, as the *t*-value data must be compared to samples of a known sustainability value. These sample limitations leave several lines of future research involving applying this metric to these other subject groups. Other researchers have indicated that industry categories are incredibly significant when understanding CSR, as different industries may have different stakeholder groups (Sturdivant & Ginter, 1977; Sweeney & Coughlan, 2008). Limiting future research to specific industries and adapting the stakeholder considerations and disclosure profiles of the T-metric in response would provide beneficial insight into industry-specific understandings of transparency.

The implications of T-metric's objective disclosure analysis are for future exploration. T-metric considers the quality of the disclosure only insofar as it applies to whether the data/information is provided. T-metric does not consider the *moral* nature of the disclosure (whether it is 'good' or 'bad'). Carrying this fact forward into a thought experiment, it is conceivable that an objectively unsustainable company (i.e., from a 'sin' industry) could provide enough transparent data in its CSR report to score similarly to, or even higher than, a company considered objectively sustainable (vis-à-vis CK rankings or similar). Thus, it is essential to establish that the T-metric measures only the honesty of the subjects' disclosures; the disclosure content is not important for the metric and could be objectively negative or positive. The observation that an unsustainable company could be considered transparent may seem outwardly perverse but illustrates a consequential facet of the T-S linkage. This observation suggests that transparency in and of itself is not a guarantor of sustainability. A stakeholder perspective must, therefore, accept that increased transparency serves to balance data asymmetries; it is the quality and nature of the data that informs sustainability performance. For management teams focusing on legitimization in good faith, this observation makes a strong argument for prioritizing transparency to support subsequent sustainability efforts. Future research should expand the sample demographic to include companies outside the sustainability elite and further explore this facet of the T-S linkage.

The *t*-value of the 100 companies in the CK G100 list was analysed. Each report was analysed for the 24 disclosure categories and scored according to the data quality. The weighting system described in the 'Methodology' section proved statistically unnecessary for data analysis. However, it served its primary function

of providing discrete, non-repeating ranks. The data analysis provided significant insights into the raw *t*-values and firm value (equity) relationships. A corporation's equity does not seem to correlate with *t*-value, somewhat counterintuitively suggesting that an organization's financial worth and size do not affect its disclosure transparency. This observation stands in stark contrast to previous studies that large corporations, with more resources and increased public/governmental scrutiny, are more likely to implement CSR (Boesso & Kumar, 2007; Mittal et al., 2008; Tamimi & Sebastianelli, 2017; Ting, 2021). Amongst larger companies, CSR is approached from a risk management perspective rather than as a transparent communication strategy. Illustrative of the conflict between the risk perspective and stakeholder perspective, this lack of correlation may signal to stakeholders that a certain amount of scepticism towards CSR efforts is not unfounded. If CSR, when practised by the largest and wealthiest firms, is ultimately used in a risk management capacity, the stakeholder's need for data symmetry is sidelined. Additionally, the finding that larger companies are not necessarily correlated with increased transparency (rather than CSR implementation, generally) is perhaps a reflection of potential greenwashing tendencies from larger companies. Increased pressures on corporate legitimacy may drive transparency down despite data showing that transparency creates value and lowers risk (Francis et al., 2009; Hahn & Lülfs, 2013; Pigors & Rockenbach, 2016). This indicates that, generally, management teams taking legitimate risk management steps need to balance them with transparency efforts if sustainability is a genuine goal. Notably, financial screenings the sample set underwent during the CK selection and the left-skewed equity distribution in Figure 4 may be biasing this observation, at least regarding equity. These limitations and the lack of any observable correlation between firm equity/size and transparency prevent this research from making actionable observations. Further analysis and study of more financially diverse companies is required to conclude the relationship between equity, organization size and transparency.

The relationship between reporting status (mandatory or voluntary) and transparency remains inconclusive. As previously stated, mandatory reporting requirements exist in many forms, although depend on too many variables to be included in this research. The calculated *p* value and the mean scores for each category suggest a relationship favouring mandatory reporters and increased transparency, but further work would be required to describe such a relationship entirely. The general mean *t*-value data from the mandatory/voluntary reporters seem to support observations that mandatory reporters have more transparent disclosure profiles in parallel with the position of Ghoogassian (2015), Moneva et al., (2006) and Hess (2012) in support of CSR regulation. However, the broad spectrum of CSR regulations makes concrete conclusions inappropriate here. Future research into classifying and categorizing regulatory strategies, their strengths and weaknesses and their overall effectiveness seems necessary to attest that mandatory reports are more transparent.

A deep and critical data analysis was done to find if the most sustainable companies share the most transparent data. At first glance, the poor correlation and normalized Rank Δ distribution observed in the ranking data do not bode well for

a clear description of the T-S linkage. In a counterintuitive twist, sustainability, as a measurable value vis-à-vis the CK methodology, does not appear to predict or correlate with transparency, as measured by the T-metric. An initial observer may reasonably expect the most sustainable companies to be the most transparent, but this intuition is not seen in these data. However, upon more critical analysis and consideration of the corporate use of CSR as a risk management tool, the corporate metering of data flow, and the hypothetical 'transparently unsustainable' company, the reasoning behind this paradox becomes more apparent. A sustainability ranking, with data sourced from CSR reports, will not correlate with a measure of transparency because the data used is filtered through and controlled by corporate risk management strategy. The lack of correlation can be ascribed to the data asymmetries that corporations curate. CSR as risk management may create a reporting climate unfavourable to high levels of transparency, which confirms what others have seen regarding CSR reporting behaviour (Kühn et al., 2014; Tamimi & Sebastianelli, 2017; Transparency International, 2009).

Transparency and moral quality are disconnected when analysing T-metric; however, it is a measure of disclosure honesty. This seems a contradiction, as it has already been established that honesty is a moral quality used by stakeholders to evaluate the 'goodness' or, perhaps, 'worthiness' of a company. T-metric is used as a measure of moral honesty but not a moral measure of the content of disclosures, and the moral quality of an honest statement should be considered separate from the moral quality of what is reported.

From the lack of correlation and the T-metric observations, we contend that appearing sustainable (i.e., one's sustainability ranking) does not depend on transparency. Likewise, the transparently unsustainable company's thought experiment establishes that transparency does not depend on sustainability. Logically, there should be a connection between transparent disclosures (i.e., honesty) and sustainability, but a correlation is not observed here. We infer that this observation can be, in part, ascribed to the conflict that arises when CSR risk management and stakeholder demands for transparency clash.

Discussion on sustainability must be separated into two parts that we label apparent sustainability (AS) and true sustainability (TS). AS is determined by the data disclosures in CSR reports, the third-party rankings established by them and the company's social presence. TS is determined by the unfiltered and uncensored CSR data, whose dissemination and access are controlled by the corporation that generates it. The corporation controls both AS and TS. However, their conflicting roles are critical to understanding the T-S linkage. AS is the sustainability value an organization displays to the public; it is shaped and informed by the corporation's risk management strategy and therefore, is susceptible to manipulation and/or greenwashing, intentional or otherwise. TS is the sustainability value that stakeholder groups demand and arguably need to make accurate valuations of corporate behaviour, purchasing decisions and policy changes. The corporation's chosen level of transparency determines the difference between AS and TS. At maximum transparency, the AS would theoretically be equal to the TS. In this way, TS depends on transparency, while AS does not. The lack of correlation seen by the T-metric is a symptom of AS. CSR reports and sustainability rankings are

representations of AS, which is independent of transparency. Therefore, no correlation is observed. The T-metric, then, serves as an *estimator* of TS. An estimation of TS represented by *t*-values since, theoretically speaking, corporate control of TS prevents its value from ever being fully known by stakeholders. For the same reason, this observation is quite challenging to test. However, it remains a critical theoretical step in understanding the T-S linkage.

From a management perspective, if sustainability and social responsibility are a goal to be reached in good faith, the observations of the T-metric and our understanding of the T-S linkage suggest that CSR risk management must be tempered and balanced with transparency. Management teams should strive to make their AS equivalent to their TS or as close as reasonably possible. Risk management and stakeholder communication must be cooperative, not mutually exclusive.

Stakeholder groups are shown to have the power to influence corporate choices, including disclosure behaviour. Increased stakeholder pressures can directly improve the transparency of CSR reports (Fernandez-Feijoo et al., 2013). Demanding transparency, however, will require having an acceptable and accurate understanding of the TS of a company. Unfortunately, this can only be estimated via T-metric or stakeholders' independent research without contentious CSR regulation. Having an easily digestible and reasonably accurate *t*-value for a company is critically important, representing a snapshot of its transparency profile. Considering this, T-metric shows significant potential as a possible valuation tool for TS. If developed into a complete measuring system, the T-metric could supplement CSR reports and give a more precise and accurate estimation of a company's TS.

Conclusion

The success of the cooperative effort that is sustainable development and CSR depends on honesty and transparency. Individuals and corporations must communicate clearly to be effective at sustainable change and identify flaws and shortcomings transparently. Determining the disclosure transparency of corporations is a critical goal of stakeholders. However, stakeholders are disadvantaged amidst an asymmetric data environment that favours the corporation. The transparency–sustainability linkage remains obfuscated by self-reported data and corporate greenwashing. The findings of this research illustrate a disconnect between CSR and sustainability driven by the conflict between corporate risk management and transparency. Consumers, investors, government agencies and communities depend on data transparency to make informed purchasing, investment and policy decisions. Likewise, management teams need to balance transparency and risk to achieve legitimacy. The solution is a T-metric that can provide reasonably accurate external evaluations of corporate transparency.

Based on the observations of the T-metric data and the resultant intuitions of the T-S linkage, we can make the following conclusions. (a) Data asymmetries in CSR disclosures favour corporate risk management to the detriment of stakeholders. A robust objective and broad spectrum T-metric is critically important to empower stakeholders. Reduced financial and investment risk, accurate corporate valuation and responsible consumer habits depend on the understanding of transparency that

this metric provides. This research provides a prototype for such a T-metric. (b) Management teams determined to improve and communicate sustainability performance must make room for increased transparency within their risk management strategy. Though our T-metric takes a stakeholder perspective, management teams could also use it internally to gauge the types of disclosures most important to their stakeholders and supplement existing risk management frameworks. More significantly, though, the T-metric developed for this article shows a somewhat disconcerting, but not surprising upon critical analysis, absence of any correlation between sustainability and transparency. This work concludes that sustainability determined by self-reported data cannot accurately predict or assume the reporter's transparency. The AS proffered by CSR reports is not moderated by the corporation's transparency and does not reflect it. This article makes the inference that the TS of a company, which is determined objectively by all the CSR data of a corporation, must be intrinsically and directly linked to transparency. Greater transparency will increase stakeholder awareness of TS and improve AS by extension. This observation also suggests, rather significantly, that TS can never be fully known as it would require complete transparency, an unlikely and potentially illegal corporate position.

CSR has become an increasingly popular management strategy amongst the world's largest and most competitive companies amid an increased stakeholder focus on corporate sustainability and citizenship. Effective CSR depends on clear and transparent communication between the organization and its stakeholders. However, the frequently asymmetric nature of this relationship empowers the organization with nearly complete discretionary control over what data stakeholder groups have. This has led many to be sceptical, if not dismissive, of CSR activities and has justifiably led others to treat CSR reporting as nothing more than public image fluff pieces and outright deception at worst. With effective regulatory control of non-financial reporting considered rather far on the horizon, surrounded by a politicized labyrinth of lobbyists and interest groups, stakeholders are left with few tools to determine corporations' trustworthiness accurately. Reporting standards, such as the GRI, attempt to solve this problem. However, their voluntary nature has failed to overcome the power asymmetry. Like CK, independent ranking organizations provide a valuable service to stakeholders and investors by assessing and listing the most sustainable corporations. However, their reliance on self-reported data leaves the fatal asymmetry intact. Building stakeholder trust with honesty and data transparency remains the elusive lynchpin for effective CSR.

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Appendix A. T-metric Disclosure Categories.

Code	Disclosure
A	Disclose: Incidents of corruption and corrective actions taken
B	Disclose: Incidents of anti-competitive behaviour, anti-trust violations and anti-monopoly violations
C	Disclose: Incidents of risk towards workers, rights to freedom of association and collective bargaining (internal)
D	Disclose: Incidents of risk towards workers, rights to freedom of association and collective bargaining (external, supplier or client)
E	Disclose: Incidents of risk for child labour (internal)
F	Disclose: Incidents of risk for child labour (external supplier or client)
G	Disclose: Incidents of risk for forced or compulsory labour (internal)
H	Disclose: Incidents of risk for forced or compulsory labour (external, supplier or client)
I	Disclose: Number of suppliers or clients assessed and identified for negative environmental impact
J	Disclose: Number of suppliers or clients assessed and identified for negative social impact
K	Disclose: Number of supplier or client relationships terminated and why
L	Disclose: Number of internal operations subject to human rights review
M	Disclose: Incidents of worker discrimination (internal)
N	Disclose: Incidents violating the rights of indigenous people
O	Disclose: Internal operations with actual or potential negative impacts on local communities
P	Disclose: Any significant fines, sanctions or violations for environmental non-compliance
Q	Disclose: Any significant fines, sanctions or violations for social non-compliance
R	Disclose: Incidents of non-compliance with health and safety regulations
S	Disclose: Incidents of non-compliance with information and labelling regulations
T	Disclose: Incidents of non-compliance with marketing communications regulations
U	Disclose: Incidents of breaches of customer privacy, leaks, thefts or loss of customer data
V	Disclose: Total monetary value of political contributions, both direct and indirect
W	Disclose: The gender diversity of leadership and management positions
X	Disclose: The number and/or rate of work-related injuries, illnesses and fatalities

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Article

Corporate Social Responsibility—Performance Nexus: The Moderating Role of Board Size, Board Independence and Board Gender Diversity in Ghana

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Abstract

This inquiry examined the moderating influence of board size, board independence, and board gender diversity on the association between corporate social responsibility (CSR) and firm performance (FP) in Ghana. It utilized data from audited financial statements of all 36 firms listed on the Ghana Stock Exchange, spanning 2010–2020. The study espoused system-GMM for the empirical estimation. Findings show that CSR demonstrated significantly positive relationship with FP, consistent with the stakeholder theory, which is aligned with Carroll's four-factor-pyramid theory but inconsistent with the agency cost theory. Again, findings depict that all three board structure elements moderated the relationship between CSR and FP.

Keywords

Board size, board independence, board gender diversity, corporate social responsibility, firm performance

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Introduction

Corporate social responsibility (CSR) and corporate governance (CG) issues have become very crucial for firms' success in today's competitive global business environment. Business success is dependent on how well management decisions are made. These managerial decisions are also hugely affected by the composition and quality of the board of directors (BOD). This is because some vital managerial decisions may have to go through BOD approval before implementation. CSR has egressed as one of the significant concerns of managers given the heightened cognizance, evolving ecological/sustainable demands and attention/pressure originating from regulatory authorities, policy-makers, the media, industrial practitioners, researchers/academia and the general public (Oduro & Haylemariam, 2019). Consequently, firms are progressively divulging information concerning their CSR activities. This is in the quest to satisfy stakeholders and to establish positive brand images to gain competitive advantages in the business environment, thereby creating value for shareholders (Ratnasari et al., 2021). CSR disclosure aids businesses to boost investors' confidence in investment decisions.

There is no universally explicitly accepted definition of CSR as its definition has evolved in a manner that integrates economic, social, environmental, and sustainable developmental facets into corporate strategy (Babajee et al., 2022; Singh & Misra, 2021). CSR is a firm's governance strategy, considered international private voluntary corporate self-regulation (Sheehy, 2015), as those activities are not obligated by the civic administrative authorities in most regulatory jurisdictions. Such activities are deemed societally and ecologically friendly, ethical, and beneficial and contribute to a stronger firm's brand image. Carroll (1991) categorized CSR as a pyramid of responsibilities, with economic responsibilities at the base, followed by legal, ethical, and discretionary/philanthropic responsibilities.

The European Commission (2001) defines CSR as activities that permit businesses not only to fulfil their mandate but also to exceed it and invest in an employable workforce in their communities and solidify stakeholder relations. Whereas some shareholders view CSR activities as an interruption of the firm's fundamental objective of shareholder wealth maximization, other stakeholders' especially top-level management view CSR as a societal obligation with enormous financial rewards to the business, which can serve as a recipe for solving the agency problem. A corporation's BOD, is one key structure, that business owners rely on via their mechanisms to solve the agency problem as their routine function of monitoring, supervision, strategic direction, oversight control, and proper governance bring into line, managers' interests with those of non-management shareowners at the least feasible cost, thereby adding value to the firm (Feng et al., 2018). Different BOD dynamics may have different influences on decision-making as to whether to allocate resources or not for CSR activities. The BOD must be

responsive to the core duties allotted them, not indulging in opportunistic activities and funds tunneling. BOD's focus should be on strategically directing management to enhance the day-to-day running of the firm. The CG metrics of importance to this current study are board size (BS), board independence (BI), and board gender diversity (BGD). It is highly imperative to therefore examine the interconnectedness between CSR and board structure elements like BS, BI, and BGD to apprehend their combined moderating influence on listed firms' performance in Ghana.

CSR-firm performance-(FP) nexuses have been and continue to be a subject matter of strong academic/scholarly research interest. Numerous studies have been performed to explore the influence of CSR on FP worldwide. Many of these studies were conducted in industrialized economies with scanty studies performed in emerging economies, such as Ghana (Babajee et al., 2022; Waheed, 2021).

Extant literature indicates that several inquiries that assessed the association between CSR and FP yielded either positive (Babajee et al., 2022; Feng et al., 2018; Javeed & Lefen, 2019; Nyeadi et al, 2018; Waheed et al., 2021); negative (Hirigoyen & Poulain-Rehm, 2017), neutral (McWilliams & Seigel, 2000), insignificant relationship (Okafor et al., 2021) or U-shaped/inverted U-shaped relationship (Grassmann, 2021).

Authors such as Babajee et al. (2022) and McWilliams and Siegel (2000), attributed the mixed results to the diversity of data sources, differences in investigational periods, contextual variances and flawed econometric specifications, in particular, the usage of static regression models, that ignored the elements of dynamism and also failed to control for endogeneity, heterogeneity, heteroscedasticity, simultaneity and reverse causality issues. Moreover, Babajee et al. (2022) are of the view that simulating pecuniary performances of businesses is a non-static activity, and therefore, applying static regression models in such a scenario produces spurious/biased/inconsistent results. It is, therefore, highly imperative to examine those variables that aid in explicating the inconclusive empirical findings. This necessitates further inquiries into the association between CSR and FP.

While authors like Galbreath (2018) and Saleh et al. (2020) are of the view that subsequent studies should consider the possibility of moderating the relationship between CSR indices and FP metrics to strengthen the said relationship, as the direct link is regarded too simplistic, others such as Waheed et al. (2021) have called for deeper/further investigations from ensuing researchers on the influence of CSR on FP in developing countries like Ghana, where the literature of this kind is near-absent. This current study, therefore, investigates the moderating role of board structure elements like BS, BI, and BGD on the relationship between CSR and listed companies' performance in Ghana, deploying a robust system-GMM to address this ignored phenomenon.

The main goal/aim/objective/purpose of this inquiry is to empirically explore the moderating role of board structure metrics of BS, BI, and BGD in the association between CSR and FP in Ghana, a lower-middle-income West African country, south of the Sahara.

The contribution of this study to the extant literature is the exploration of the moderating influence of BS, BI, and BGD on the association between CSR and

the performance of firms listed on the GSE, which to the best of the author's awareness is the foremost research to examine such moderating associations in Ghana. By utilizing a robust dynamic panel system-GMM, this inquiry adds to the extant literature in view of the fact that it deals with the non-static nature of pecuniary performance simulation (Babajee et al., 2022) in addition to probable unobserved heterogeneity, heteroscedasticity, endogeneity, simultaneity, and reverse causality concerns likely to be present in the CSR-FP literature.

The remaining sections of this article are organized in the following manner: The second segment reviews the theoretical and empirical literature and formulates the study's hypotheses. Data and research methodology follow in section three. A presentation and discussion of the research results are provided in section four. Limitations and areas for further inquiries are offered in the fifth segment. Conclusion, policy, and managerial implication relevance end the study in section six.

Literature Review and Hypotheses Development

Theoretical Literature

Underpinning Theories: Carroll's Theory and the Stakeholder Theory

This study presents Carroll's 4-factor Pyramid theory as the chief basis for a firm to undertake CSR activities in Ghana. This is theoretically aligned with the stakeholder theory which explains that a corporation does not only exist to create value for its shareholders but also for the needs of diverse stakeholders like the employees, customers, suppliers, creditors, the general public, government, and state agencies, social, legal, ethical and community needs and is entirely required to create excellent relationships with such stakeholders. Managers are principally charged not only to seek stockowners' interest but with the more social responsibility of synchronizing all stakeholder interests, harmonizing any arising conflict, and optimizing the aggregate gains over all times horizons.

Carroll (1979) provided a theoretical hypothesis that systematically explains indispensable portions of CSR, namely, (a) the constituent of CSR (b) The social issues to be addressed by corporate entities and (c) the organizational philosophy of social responsiveness. From Carroll's perspective, CSR activities should commence from the base of the pyramid to the apex, that is, from economic responsibilities through to philanthropic responsibilities. When a firm fulfils its primary economic responsibility efficiently, then it can move to legal responsibility in that order. Carroll (1991) is of the view that the foremost stage in executing CSR is to engage in a business venture and realize profits. According to Carroll, profits are required to compensate providers of capital to the business. Furthermore, profits must be ploughed back into the business to sustain business growth.

The focal notion of Carroll's theory is to implement CSR activities in an ordered format, which when implemented results in a positive relationship with FP. A business is recognized as societally responsible if it functions profitably, conforms to the law, engrosses in moral/ethical behavior and donates to society via philanthropic activities. Windsor (2001) asserts that pecuniary and lawful

obligations are needed socially, ethical responsibilities are expected socially and philanthropic agendas are desired socially. When Carroll formulated his original theory in 1979, which metamorphosed into his four-element pyramid theory in 1991, it was vividly executed having American kind capitalist civilizations at the background. Nonetheless, Crane and Matten (2016) noted that all the strata of Carroll's theory were useful in Europe. Similarly, Visser (2016) assessed Carroll's theory in emerging economies especially, African economies, and contends that the classical Carroll's theory differs in the order of arrangement in the African context. According to Visser (2016), in emerging economies, economic responsibility is regarded as the most important, followed by philanthropic responsibilities, then legal, and finally ethical responsibilities (Wayne, 2010). Given the above, businesses must shed light on the nature of the environment in which they operate before implementing Carroll's concept. To maximize the gains associated with CSR, firms need to take into consideration the immediate community's requirements and thus adopt projects that have an analogous fit with that society.

CSR of Firms in Ghana

In Ghana, firms that are considered good corporate citizens are awarded annually by The Centre for CSR, West Africa during the Ghana CSR Excellence Awards in various categories for their CSR engagements. The basis for the awards includes beneficiary-focused initiatives, commitment to sustainability, execution of outcome-focused CSR ingenuities for each period, and established allegiance to the tripartite bottom line (people, planet, profit).

The Ghana CSR Excellence Awards was instituted to ensure that corporate bodies become more socially responsible and sustainability conscious when undertaking their core business functions. To improve the livelihood of the people in their operating environs, the types of CSR firms in Ghana engage in include the building of mechanized boreholes and provision of portable drinking water in the remote countryside, sanitation projects, schools, provision of scholarships to needy but brilliant students, sports sponsorships, financial supports to orphanages and needy institutions, market places, lorry parks, community centers, health facilities, electrification projects, road construction among other CSR projects. Concerning firms mining in Ghana, the Ghana Chamber of Mines require them to allocate at least US$1 of their operating income per ounce of Gold and also one percent of their earnings after interest and tax to aid repair the damages caused in their respective communities of operations (Source: Ghana Chamber of Mines, 2011). Several corporate entities (e.g., Fan Milk Limited) have also signed on to the UN Global Compact initiative that ensures that they operate in an ethical and socially responsible manner and act as good corporate citizens. CSR decisions of foreign firms operating in Ghana are mainly guided by legal prescriptions, those of the indigenous Ghanaian firms are guided mostly by discretionary and social considerations. The socially oriented CSR practices of the local firms are consistent with cultural expectations in Ghana that those with extra resources should support the less privileged members of the society. The empirical-based extant literature established that contemporary CSR in Ghana is framed within the context of development and reflects voluntary corporate self-regulation

(Amo-Mensah, 2021) as the legal and legislative framework regulating CSR activities in Ghana is quite different from those in other emerging market economies. While in other emerging market economies, CSR are government-led, where company CSR decisions are guided by national laws, CSR activities in Ghana reflects a corporate self-regulatory approach, where, CSR laws have not been explicitly enshrined in any national legislation (Amo-Mensah, 2021). In addition, Ghanaian cultural values and principles had always shaped the CSR activities of businesses that operate in Ghana, thus making the kind and type of CSR firms undertake in Ghana quite unique and distinct from those of other emerging market economies (Amo-Mensah, 2021).

Empirical Literature

CSR and FP

CSR describes the sense of accountability businesses have for the societies they operate in and at the same time enhancing FP. The conventional method of CSR refers to the communal and ecological constructs, lead organizations to realize sustainable performance (Yong et al., 2022). CSR assists companies in eradicating or lessening the conflicting contentions institutional agents, that is, corporate managers and business owners (Sial et al., 2018), thus solving the agency problem within the firm. CSR undertakings create interpersonal resources and moral capital which enhances a company's performance (Wang et al., 2008). CSR programs show a dip in employee resignations and raise workers' loyalty (Santos, 2011), improve customer satisfaction level (Saeidi et al., 2015), increases client commitment (Weber, 2008), and assist companies to enhance their general reputation (Tencati et al., 2004).

The aforesaid dynamics support companies in reducing the transaction cost and increasing FP (Manchiraju & Rajgopal, 2017; Sprinkle & Maines, 2010). Those companies that engender sufficient and extra earnings are ardent to show social and environmental revelation in their reportage (Ho & Taylor, 2007). Besides, social-influence philosophy posit that CSR affect FP positively and enhances the communal relations of the firm (Cornell & Shapiro, 1987). Good corporate citizens convey pecuniary rewards to the institutions, thus reinforcing the connection between CSR and FP (Khan et al., 2020).

Information from prior studies reveals that CSR is an efficacious means, adeptly making institutions to realize greater performance (Lu et al., 2020). Supporters of the direct association between CSR and FP advocate that CSR enhances a company's image/value, which further surges the long-run financial performance of firms. Undoubtedly, CSR enhances a company's reputation, brand position, and image (Adapa, 2018; Kotler & Lee, 2005). Furthermore, it yields sales increments, re-enforces worker commitment and staff allegiance, upsurge labor efficiency, and offers further pay-offs (Mousiolis et al., 2015). Indisputably, executing CSR programs have demonstrated to lead to improved operational functionality, pecuniary business rewards, and alleviation of business hazards (Dhaliwal et al., 2011). Thus, partaking in CSR programs re-enforces a firm's ethnic identity, yielding greater stakeholder satisfaction and enhanced financial

performance (Okafor et al., 2021). Besides, numerous pieces of research establish a conspicuous notion of CSR on FP (Latif et al., 2020) by endorsing the direct association between CSR and FP (Ling, 2019).

In sum, the literature review largely depicts a direct correlation between CSR and FP. Building on the literature review, this inquiry formulates a testable hypothesis as follows:

H_1: CSR has a positive and significant influence on FP.

CSR, BS, and FP

Ceteris paribus, increasing BS should result in a dip in discretional accumulations and enhance the quality of pecuniary reportage in view of BOD's high inspection and monitoring levels. According to Fama and Jensen (1983), the BOD is the most essential conduit in the interior CG configuration of a company. Agency theory (AT) posit that, the bigger the board, the more attentive and watchful the board will be because a considerable number of veteran and knowledgeable board members will be monitoring and appraising managerial actions and inactions (Kiel & Nicholson, 2003). Again, AT's viewpoint is that bigger boards assist efficient monitoring by cutting CEO power and safeguard shareowners' interests (Singh & Harianto, 1989). They contended that bigger boards enhance the negotiating locus of the board vis-à-vis CEO and thus bigger boards are more efficient in monitoring managerial activities. Bigger boards are regarded as having adept board members, specifically those who are non-executive directors and can offer ecological links.

Contrariwise to research undertaken by the investigation of (Ujunwa, 2012) examining the influence of BOD features on Nigerians pecuniary performance, it was revealed that, BS was indirectly associated with FP. Saad (2010) indicated that the pecuniary performance of the company is enhanced with a bigger BS because the firm will have more knowledgeable directors to excellently execute their functional duties. Cheng (2008) opined that bigger BS is indirectly related to FP. Cheng maintained that having a bigger board will generate more bureaucratic delays during the decision-making process. BS is usually used as a signal for the advisory/monitoring role. Practical study findings on ideal BS are mixed. Opponents of bigger BS argue that, bigger BS increases operational expenses and BOD contentions. On the other hand, supporters of bigger BS contend that, small BS are ineffective in monitoring influential corporate heads and CEOs. Coles et al. (2008) also maintained that, BS has a direct correlation with firm size. Accordingly, based on the literature review, this article formulates hypothesis number 2 as follows:

H_2: BS moderates and strengthens the relationship between CSR and FP.

CSR, BI, and FP

One school of thought is of the view that for BOD to be efficacious in its monitoring activities, then it should be autonomous. Besides, non-executive members' inclusion on the BOD is a proficient means of lessoning the potential agency

problems of corporate entities. Numerous prior studies' assessment of BI as a moderator on the association between CSR and FP have yielded varied findings (Chen, 2011; Duru et al., 2016; Moussa, 2019; Karadağ et al., 2015; Wu & Wu, 2014). These researchers contend that non-executive members' interest on the BOD has to do with mitigating corporate risk vis-à-vis investment decisions making. Conversely, others are of the opinion that the non-executive directors' overly involvement in the routine dealings or happenings of the corporate entity may limit top-level authority holders to undertake their operational duties freely. The extant literature thus theorizes the moderating role of BI as follows:

H_3: BI moderates and strengthens the relationship between CSR and FP.

CSR, BGD, and FP

The utmost extensively deliberated feature of BOD multiplicity and dynamics is gender. The structure of gender on the board is an imperative CG construct, since females and males are traditionally, dissimilar. For example, evidence from prior studies indicates that men and women are dissimilar concerning personality traits, style of communication, level of education, level of knowledge, and work experience. To validate this, contentions elements/factors like the speedy socialization experienced by the feminine gender, and gender's influence on their behavior as females (Shepard et al., 1997). Some researchers' document that feminine directors may play an inconsequential role in checking issues in view of gender-based predispositions (Galbreath, 2018). Studies on the impact of gender diversity in developing countries are comparatively scanty because of cynicism about involving female directors on the board of most corporate entities.

In 2009, Johl et al. (2015) analyzed the effect of BOD features and FP of 700 publicly companies operating on the Malaysia Stock Exchange and unveiled that female involvement yielded significantly direct association with ROA. This conforms to the works of Taghizadeh and Saremi (2013) whom in 2008 analyzed 150 publicly listed firms in Malaysia. Analogous findings were revealed by Hou et al. (2015) for companies operating on Singapore's main bourse. Hou et al. (2015) revealed that female multiplicity upsurges the company's stock market prices measured via TQ. Nonetheless, Marimuthu and Kolandaisamy (2009) study revealed insignificant association sex multiplicity and FP.

The association between sex multiplicity and myriad FP metrics (ROA, return on equity [ROE], and TQ) in Scandinavia countries is somewhat feeble. Daunfeldt and Rudholm (2012) and Schwizer et al. (2012) unveiled insignificant correlation between sex multiplicity and FP. Nonetheless, Ahern and Dittmar (2012) indicated that market share prices of companies in Norway drop with the inclusion of female BOD members to satisfy the country's affirmative action drive.

One can, therefore, conclude that female directorship on the BOD yields healthier board crescendos and relatively enhanced FP. AT submits corporate managers would be effectively monitored with a more multifaceted BOD. On the basis of the findings of prior studies in the extant literature, this article formulates the fourth and final hypothesis as follows:

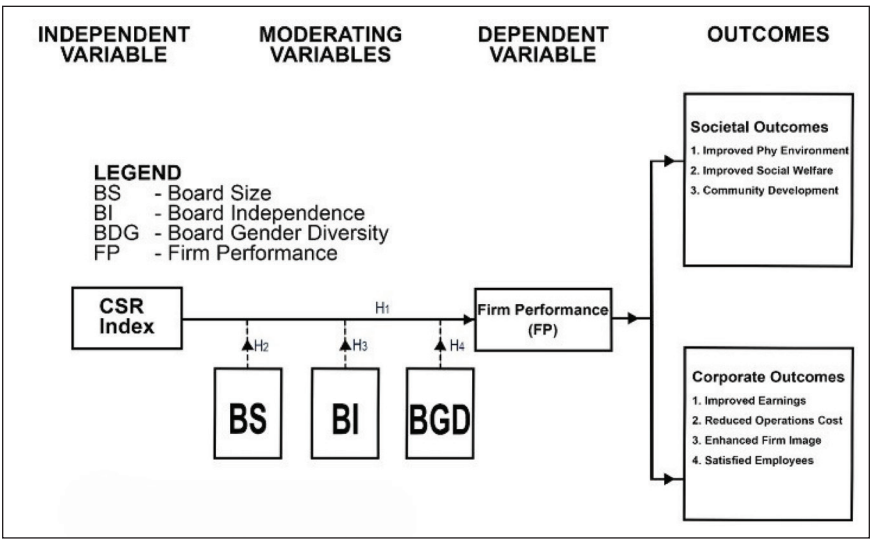

Figure 1. Conceptual Framework (Research Model).

H_4: BGD moderates and strengthens the relationship between CSR and FP.

Conceptual Framework (Research Model)

This study's research model (conceptual framework) is built on the linkages between variables (prognostic, control, moderating, and response) in previous research. Figure 1 present a schematic view of the study's conceptual framework guiding this empirical investigation, depicting that CSR decision of listed firms in Ghana affect FP via the moderating impact of board structure elements as follows: CSR index influences FP proxies by accounting-based profitability metric, that is, ROA and market value metric represented by TQ via the moderating influence of BS, BI, and BGD. The use of the word "outcomes" in Figure 1 is not referring to outcome variable as in dependent variable. It is only explicating the consequences or end result of the impact of CSR on FP. These outcomes are usually seen/reflected in the various communities of operations referred to as societal outcomes [1. Improve physical environment, 2. Improve social welfare, 3. Community development] or reflected in corporate performance referred to as corporate outcomes [1. Improved earnings, 2. Reduce operational cost, 3. Enhanced firm image 4. Satisfied employees] as shown in Figure 1.

Data and Methodology

Sample and Data

The inquiry's population comprised all 36 listed companies in Ghana. This form the study's sampling frame and size. The researcher's intent was to ascertain

whether corporations' CSR programs contributed value to Ghana's capital market players. The study utilized pecuniary information pooled from the audited final accounts of listed firms for the period 2010–2020, yielding 396 balanced panel firm-year observations. The financial information was acquired from the facts book of the Ghana Stock Exchange and the websites of the companies via withdrawal technique. All 36-listed firms have in one way or another other engaged in CSR activities in Ghana over the study period. The author hand-gathered primary data on board structure variables (BS, BI, and BGD) via a structured (close-end) questionnaire (Appendix) administered to the top-level management of the listed firms and verified the information with information extracted from the Annual Corporate Governance Reports published by the GSE and information from the published audited final accounts.

Econometric Estimation Technique

This inquiry empirically investigates the impact of CSR on FP with respect to all 36 listed companies in Ghana via the moderating role of BS, BI, and BGD. The inquiry utilized a robust system-GMM estimation technique to specify the linkages between **CSR** and **FP** in Ghana as used by prior researchers (Asongu & De Moor, 2017; Asongu et al., 2018; Asongu & Acha-Anyi, 2019). The system-GMM estimator was chosen given its associated advantages and the dependability of related results. The system-GMM estimator uses the added set of level moment conditions in addition to the difference moment conditions for prediction in dynamic panel data. As such, it blends the difference equations and the level equations into one superior system of equations. According to Roodman (2009), this entails formulating a weighted dataset with doubled observations, where the difference equations precede the level equations. Since the differential equations and the level equations assume similar non-exponential specifications, the entire system can be specified by a single procedure that satisfies both systems of equations. The gains from using the Systems-GMM over the other known methodologies are as follows:

Systems-GMM incorporates the dynamism of the phenomena been investigated, that is, given the characteristic changing nature of a firm's DP from its target in the SR, and the corresponding self-adjustment to its main target, in the long run, the system GMM is best suited for specifying CSR-FP models econometrically (Wooldridge, 2010). It does not discard cross-industry disparities in the specification (Asongu et al., 2018). It allows the error terms to be uncorrelated across individual observations (Gujurati, 2004). It can deal with unobserved heterogeneity with time-invariant indicators (Wooldridge, 2010) and endogeneity problems via an instrumentation process. It can control for heteroscedasticity concerns (Wooldridge, 2010). System-GMM is favored in this current inquiry because it offers the least bias and uppermost accuracy with small time dimension (t) (in this case 9 years) when matched to other econometric estimation techniques like the fixed effect (FE), random effect (RE), level or difference GMM. The present study handled all regressors stringently as exogenous, with the exception of the lagged regressants deployed as instruments in the models. By lagging the reggressants and utilizing them as

regressors, it solves any endogeneity, reverse causality issues as well as inconsistencies outcomes resulting from pretermit variables.

Last, of all, four tests were utilized to corroborate the Blundell and Bond (1998) estimator comprising two serial-correlation tests: AR(1) and AR(2) - Arellano and Bond (1991), Sargan and Hansen overidentification restrictions tests (OIR) and contemporaneous correlation test (CD3) for correcting cross-sectional dependence. AR(1) test is performed on the grounds of the null hypothesis of no first order correlation of the idiosyncratic terms and the AR(2) test, is grounded on the null hypothesis of no second order correlation between the stochastic disturbance terms. Sargan and Hansen's (OIR) tests must be insignificant because their null hypotheses are the positions that instruments are valid or uncorrelated with the white noises. In essence, while the Sargan OIR test is not robust but not weakened by instruments, the Hansen OIR is robust but weakened by instruments. To enforce identification restrictions, the author has ensured that instruments are lower than the number of cross-sections in most specifications (Asongu & De Moor, 2017). The estimated model is valid when the null hypotheses of the AR(1) and AR(2) tests are both accepted. For the Sargan and Hansen (OIR) test, it is expected that the null hypothesis is accepted, resulting in instruments that are uncorrelated with the residual terms.

The deployment of any good dynamic panel GMM estimation technique necessitates the substantiation of its framework with identification, simultaneity, and exclusion restrictions (ER). Identification denotes the selection of the outcome, endogenous variables explaining the strictly exogenous variables. Simultaneity bias, a problem that results when the explanatory variables are correlated with the residuals is solved with lagged explanatory variables deployed as instruments. ER is the procedure by which the strictly exogenous variables solely via the endogenous explaining variables impact the outcome variable. ER concept means that some of the exogenous variables may not be present/observable in the dynamic models and it's mostly expressed by saying the coefficient next to that exogenous variable is zero, which may make this restriction (hypothesis) testable. As far as ER is concerned, only time-invariant variables are treated as strictly exogenous but all other explanatory variables are treated as suspected endogenous/predetermined variables (Asongu & Acha-Anyi, 2019).

These time-invariant variables influence the outcome variables exclusively via the suspected endogenous/predetermined variables, which is in line with the identification process. Also, the fundamental ER axiom is statistically valid if and only if the null hypothesis relating to the Difference in Hansen Test (DHT) for instrument exogeneity is supported. With respect to the moderating roles of the three selected **CG** elements, that is, BS, BI and BGD, the study employed moderated multiple linear regression analysis (interactive regression models) for its analyses. A moderator (also referred to as Effect modifiers; Effect-measure modifiers; Interacting factors) is a variable that systematically modifies the form or strength of a relation between an independent variable and a dependent variable (Baron & Kenny, 1986). Inculcating interaction variables in multivariate linear regression models alters the interpretation of the coefficient of the constituent variables, that is, the individual terms within the interaction.

In an interactive regression, the individual variables coefficient depict the effect of the variable only when the other variable equals zero (Burks et al., 2019). It must be noted that, many at times, this specific effect does not denote a central tendency or "main effect," since the other individual variable assumes a zero value only at an extreme/unfeasible point. Observing a large change in the individual term coefficient after incorporating an interaction term to a previously specified regression model, simply reflect the newly conditional nature of the coefficient but cannot be interpretated as the presence/existence of collinearity between the individual term and the interaction (Burks et al., 2019). This does not invalidate the multivariate linear regression equations (Burks et al., 2019).

This current study employed mean centering technique before introducing the interaction terms as a means of alleviating structural multicollinearity concerns (structural multicollinearity is a mathematical term/variable caused by generating fresh regressors from other regressors, like generating the regressor x^2 from the regressor x) and thus creating more stable estimates of regression coefficients. Mean centering also referred to as variable standardization via mean subtractions, encompasses computing the mean for the individual explanatory variables and then deducting the mean from all observed figures of that variable. The resultant centered variables are then used in the regression equations. Notwithstanding the fact that other standardization procedures exist, mean subtraction has the advantage in that, the interpretation of the coefficients does not change. The coefficients continue to represent the mean change in the response variable given a 1 unit change in the prognostic variable.

Empirical Model Specification

This inquiry used two FP metrics, namely, ROA a profitability/accounting measure and TQ, a stock market metric. Notwithstanding the associated advantages of utilizing the accounting measure-ROA, it can be manipulated by the firm's management. The stock market value metric – TQ on the other hand is difficult to manipulate even though it reflects investors' subjective assessment instead of the true economic reality of the corporation (Nyeadi et al., 2018). As such, this study utilized both measures as a robustness check, and also, one measure's strengths might offset the shortcomings of the other. The initial equation sets modelled ROA and TQ for firm "i" at a time "t" on the CSR index and the related control variables without the interaction terms as follows:

$$\begin{aligned} ROA_{it} = {} & \beta_0 + \beta_1 ROA_{it-1} + \beta_2 CSR_{it} + \beta_3 BS_{it} + \beta_4 BI_{it} + \beta_5 BGD_{it} + \\ & \beta_6 CR_{it} + \beta_7 DER_{it} + \beta_8 TAT_{it} + \beta_9 TANG_{it} + \beta_{10} GROW_{it} + \\ & \beta_{11} SIZE_{it} + \beta_{12} AGE_{it} + \mu_i + \lambda_t + \varepsilon_{it} \end{aligned} \quad \textbf{[MODEL 1]}$$

$$\begin{aligned} TQ_{it} = {} & \beta_0 + \beta_1 TQ_{it-1} + \beta_2 CSR_{it} + \beta_3 BS_{it} + \beta_4 BI_{it} + \beta_5 BGD_{it} + \\ & \beta_6 CR_{it} + \beta_7 DER_{it} + \beta_8 TAT_{it} + \beta_9 TANG_{it} + \beta_{10} GROW_{it} + \\ & \beta_{11} SIZE_{it} + \beta_{12} AGE_{it} + \mu_i + \lambda_t + \varepsilon_{it} \end{aligned} \quad \textbf{[MODEL 2]}$$

The final equation sets modelled ROA and TQ for firm "*I*" at a time "*t*" on the CSR index and the related control variables with the introduction/addition of the interaction terms as follows:

$$\begin{aligned} ROA_{it} = {} & \beta_0 + \beta_1 ROA_{it-1} + \beta_2 CSR_{it} + \beta_3 BS_{it} + \beta_4 CSR_{it} * \\ & BS_{it} + \beta_5 BI_{it} + \beta_6 CSR_{it} * BI_{it} + \beta_7 BGD_{it} + \\ & \beta_8 CSR_{it} * BGD_{it} + \beta_9 CR_{it} + \beta_{10} DER_{it} + \\ & \beta_{11} TAT_{it} + \beta_{12} TANG_{it} + \beta_{13} GROW_{it} + \\ & \beta_{14} SIZE_{it} + \beta_{15} AGE_{it} + \mu_i + \lambda_t + \varepsilon_{it} \end{aligned} \quad \textbf{[MODEL 3]}$$

$$\begin{aligned} TQ_{it} = {} & \beta_0 + \beta_1 TQ_{it-1} + \beta_2 \boldsymbol{CSR_{it}} + \beta_3 BS_{it} + \beta_4 \boldsymbol{CSR_{it}} * \\ & \boldsymbol{BS_{it}} + \beta_5 BI_{it} + \beta_6 \boldsymbol{CSR_{it} * BI_{it}} + \beta_7 BGD_{it} + \\ & \beta_8 \boldsymbol{CSR_{it} * BGD_{it}} + \beta_9 CR_{it} + \beta_{10} DER_{it} + \\ & \beta_{11} TAT_{it} + \beta_{12} TANG_{it} + \beta_{13} GROW_{it} + \\ & \beta_{14} SIZE_{it} + \beta_{15} AGE_{it} + \mu_i + \lambda_t + \varepsilon_{it} \end{aligned} \quad \textbf{[MODEL 4]}$$

Moderation effect is present in these models if, the coefficients of the interaction between the main predictor (CSR) and the moderator variables (BS, BI, BGD) are statistically significant. Put differently if CSR * BS; CSR * BI and CSR * BGD are found to be statistically significant, then a moderation effect is present and the strength of the relationship between the prognostic variable (CSR) and the criterion variable (FP) is changed (Mansour et al., 2022). Explicitly, when (BS, BI, BGD) strengthens (weaken) the effect of the CSR, the interaction term will have the same sign (opposite sign) as the CSR variable (Mansour et al., 2022). Put differently, if the moderation ends in strengthening the relationship between the independent variable and the dependent variable then both the independent variable and the interaction term will generate the same sign. On the other hand, if the modification ends in weakening the relationship between the independent variable and the dependent variable then both the independent variable and the interaction term will generate the opposite signs. In this study, CG metrics of BS, BI, and BGD were treated strictly as pure moderators and not quasi-moderators as they interact with the CSR index but have no direct relational impact on FP (ROA and TQ). Put differently, pure moderators are variables that must necessarily interact with the independent variable to modify the form or strength of the relationship between the dependent and independent variable but does not influence the dependent variable directly. Psychometrically speaking, pure moderators must enter into an interaction with the independent variable while having a negligible correlation with the dependent variable itself (Akhmadi & Januarsi, 2021; Otero-González et al., 2021; Sharma, 2003). A quasi-moderator on the other hand is a variable that interact with the independent variable to modify the form or strength of the relationship between the dependent and independent variable and in addition acts as a predictor itself in influencing the dependent variable. The variables were selected on the basis of

Table 1. Measurement of Variables.

Variables	Measurement	Variable Type	Sources
ROA	Represents return on assets, measured as earnings before interest and tax (EBIT) divided by total assets	Dependent	Nyeadi et al. (2018) Essel and Brobbey (2021)
ROAit-1	one-year lag of ROA	Independent	Essel and Brobbey (2021)
TQ	Represents Tobin's Q, measured as [(market value of equity) plus (book value of assets) minus (book value of equity)] all divided by book value of assets	Dependent	Nyeadi et al. (2018) Essel and Brobbey (2021)
TQit-1	one-year lag of TQ	Independent	Essel and Brobbey (2021)
ROE	Represents return on equity, measured by earnings before interest and tax (EBIT) divided by total shareholders' equity	Dependent-for Robustness checks only	Nyeadi et al. (2018)
CSR	Represents Corporate Social Responsibility, measured as value contribution per share towards society, computed as CSR = [Earning per Share + (Total Tax + Staff Expenditure + Interests + Public Welfare Payout – Social Cost) / Total Equity]. This measure is grounded on the entire essential components for social value, like EPS generated for stockowners, value produced for society measured as state tax revenues, workers renumeration, interest on borrowed funds, and other stakeholder values, and removing activities that are detrimental to the ecosystem as a social cost.	Main explanatory	Feng et al. (2021)
BS	Represents board size, measured as the log of the number of members on the board	Moderating	Essel & Addo (2021)
BI	Represents board independence, measured as the number of non-executive or outside directors on the board divided by total number of directors on the board	Moderating	Essel & Addo (2021)

BGD	Represents board gender diversity, measured as the number of female directors on the board divided by total number of directors on the board	Moderating	Essel & Addo (2021)
CR	Represents current ratio, measured as current assets (CA) divided by current liabilities (CL)	Control	Essel & Brobbey (2021)
DER	Represents debt-to-equity-ratio, measured as total debt divided by total equity	Control	Ofori-Sasu et al. (2017)
TAT	Represents, total assets turnover, measured as total assets divided by sales	Control	Agyei et al. (2020)
TANG	Represents tangibility, i.e., total fixed assets turnover, measured as total fixed assets divided by total assets	Control	Ofori-Sasu et al. (2017) Agyei et al. (2020)
GROW	Measured as current sales less previous year's sales divided by previous year's sales	Control	Agyei et al. (2020)
SIZE	Measured as the natural logarithm of total assets	Control	Nyeadi et al. (2018)
AGE	Represents the number of years of firm existence	Control	Nyeadi et al. (2018)
β_0	Constant/intercept		Essel & Brobbey (2021)
$\beta_{1.....}\beta_{15}$	Beta parameters (coefficients) to be estimated		Essel & Addo (2021)
μ_i	Unobservable heterogeneity (firm-specific effects)		Essel & Brobbey (2021)
λ_t	Time dummy variable (time fixed effects)		Essel & Brobbey (2021)
ε_{it}	Residual term		Essel & Addo (2021)
i.	Cross-sectional dimension		Essel & Addo (2021)
t.	Time dimension		Essel & Brobbey (2021)

Note: NB: Variables were winsorized at the 5th & 95th percentiles so as to minimize the effect of possible extreme values acting as outliers, except for the firm-specific effects and time fixed effects dummy variables.

data availability and peculiarity of the happenings in the Ghanaian capital market vis-à-vis CSR-FP nexuses. The measurements of the study's variables, their definitions, and empirical source literature are presented in Table 1.

Results and Discussion

Regression Assumptions Testing

The authors ensured that the standardized multivariate linear regression models satisfy all the assumptions [Normality, heteroskedasticity, autocorrelation, endogeneity and heterogeneity] necessary under multiple linear regression analysis to avoid a situation where an assumption would be violated which will result in biased/spurious outcomes.

The assumption testing guarantee that the models are fit for regression. The regression assumption testing results are presented in Table 2.

Descriptive Statistics

Table 3 presents the summary descriptive statistics of the response, prognostic, moderating, and control variables. As mentioned earlier, this study utilizes 36 cross-sectional units for an 11-year time period, generating 396 firm-year balanced observations.

Table 2. Testing Regression Assumptions Summary.

Test	Test Statistics and Hypotheses	Null
1	Test for normality: Econometric tool: Kolmogorov–Smirnova/Shapiro–Wilk test Results: Statistics = 0.823, *df* = 304, Sig = 0.057 Null Hypothesis: Data is normally distributed Decision: The model is fit for regression because, regression assumption is not violated	Accepted
2	Test for heteroskedasticity: Econometrics tool: Breusch–Pagan/Cook–Weisberg test Result: BP = 135.00, *P* = .000 The null is that it is homoscedastic	Accepted
3	Test for autocorrelation: Econometrics tool: Durbin–Watson statistics Result: *R* = 0.426, R^2 = 0.302, Durbin–Watson statistics = 2.002 Null hypothesis: Autocorrelation Decision: The model is fit for regression in view of the fact that regression assumption is not violated	Rejected
4	Test for endogeneity: Test for unobserved individual heterogeneity: Econometrics tool: Hausman Specification Test (HST) Result: Prob. > *F*,Chi^2(9) = 0.0000 Null hypothesis: System GMM estimator Decision: The System GMM estimator is most appropriate for regression	Accepted

Table 3. Descriptive Summary Statistics of Dependent and Independent Variables.

Variables	Obs.	Mean	Std Dev.	Min.	Max.	Skewness	Kurtosis
ROA	396	0.10	0.05	0.02	0.56	0.02	2.35
TQ	396	0.69	0.49	0.20	1.94	0.14	3.47
CSR	396	0.07	0.05	0.01	0.24	0.04	3.58
CR	396	1.59	0.41	1.08	2.27	1.99	2.87
DER	396	0.71	0.26	0.14	0.86	–1.99	–2.65
TAT	396	0.67	0.30	0.25	0.89	0.07	2.68
TANG	396	0.69	0.08	0	0.83	0.61	3.33
GROW	396	0.24	0.09	0.15	0.88	1.05	3.57
SIZE	396	8.73	0.36	1.25	9.24	1.12	2.85
AGE (years)	396	41.36	12.20	10.00	67.00	0.52	2.97
BS	396	8.27	2.28	5.00	14.00	0.27	3.24
BI	396	0.60	0.14	0.10	0.92	0.01	3.21
BGD	396	0.16	0.11	0	1	0.42	2.98

The 36 listed companies recorded an average profitability-ROA of 0.10, meaning that for each cedi in assets, the firms generated 10 pesewas in profits. The mean TQ for the firms was 0.69, suggesting that majority of the companies operating on the GSE on average made losses; as their current market values exceeded their replacement costs.

The study recorded a CSR value of 0.07, implying that, listed firms on average channeled 7% of their net profit after interest and tax into CSR projects. The company's mean CR was 1.59, suggesting a quite satisfactory liquidity position stemming from fairly good working capital management practices.

Concerning gearing, listed companies employed more debt financing than equity financing as they recorded an average DER of 71%. This conjecturally signals the under-developed status of Ghana's bourse as a source of raising equity finance. An average of 67% and 69% were recorded for TAT and TANG, respectively, signifying that, the listed firm's total assets generated 67% of their sales, while 69% of their total assets were injected into fixed assets. The average sales growth rate of the listed firms was 24%, and an 8.73 average SIZE was recorded for the listed companies. The study recorded a mean age of 41 years, with the youngest firm being ten years, and the oldest firm, having been in operations for 67 years in Ghana. There were 8 board members on average with a maximum BS of 14 and a minimum size of 5. On average, 60% of the board members were non-executive (outside) directors which are good for CG purposes and 16% of board members were females which is rather on the low side.

Correlation Analysis

The study prepared a correlation matrix to ascertain whether multicollinearity was an issue in the sampled dataset. In addition, the correlation matrix was performed to ascertain the associations between the response variables and the predictor, moderating, interaction terms and control variables as well as explore the associations

among all the independent variables. Furthermore, all the predictors recorded the highest VIF of 1.25, 1.30, 1.11, 1.32, 1.13, 1.12, 1.34, 1.56, 1.64, 1.44, and 1.50, respectively, for the explanatory variables. These VIFs fall below the criteria of 10, suggesting the absence of multicollinearity (Kennedy, 1998). The VIF values are presented in Table 4. This was performed to circumvent a scenario where two or more highly correlated variables would be included in a regression model. Table 4 presents the correlation analysis with ROA and TQ as the dependent variables against the other independent, moderating and control variables.

The correlation test performed revealed that the correlation between the variables included in the regression all fell below Hair et al. (2016) recommended criterion of 0.6, and as such, the absence of multicollinearity. DER depicted a negative and significant association with ROA and TQ, signifying that, highly leveraged companies performed appallingly. This can be attributed to the high-interest rate on loanable funds in the Ghanaian financial market. All the other independent variables depicted significantly positive associations with ROA and TQ.

Empirical Baseline Regression Results and Discussion

As indicated earlier, the objective of this scientific inquiry is to empirically investigate the effect of CSR of the performance of listed firms in Ghana, via the moderating influence of BS, BI and BGD. The study utilized two measures of FP-(ROA and TQ) as a means of avoiding potential variable mismatch issues in addition to ensuring a robustness check of the study findings. The study foremost examined the individual effect of CSR on the performance of listed firms in Ghana directly without the moderation effect. The study then assessed the effect of CSR on FP with the interaction/moderation influence. Table 5 presents the baseline regression results performed via a robust two-step system-GMM in two separate fashions. The results without moderation interactions and the results with moderated interactions.

Model 1 presents the result without moderated interactions using ROA as the criterion variable.
Model 2 presents the result without moderated interactions using TQ as the response variable.
Model 3 presents the result with moderated interactions using ROA as the dependent variable.
Model 4 presents the result with moderated interactions using TQ as the criterion variable.

All the four-test performed to corroborate the Blundell and Bond (1998) system-GMM estimator were demonstrated to be statistically valid as Sargan and Hansen test confirmed the absence of overidentification issues, AR(1) and AR(2) passed the test for no-first and second-order serial-correlation in errors and the CD[3] test showed no issue of contemporaneous/cross-sectional dependence in the study results. The adjusted R^2 values for all four models as presented in Table 5 is

Table 4. Pearson Correlation Matrix and Multicollinearity Test of Study Variables.

	1. ROA	2. TQ	3. CSR	4. DER	5. CR	6. TAT	7. TANG	8. GROW	9. SIZE	10. AGE	11. BS	12. BI	13. BGD
1. ROA	1												
2. TQ	0.27**	1											
	(0.0000)												
3. CSR	0.23**	0.39**	1										
	(0.0000)	(0.0000)											
4. DER	–0.52**	–0.33**	–0.24*	1									
	(0.0000)	(0.0001)	(0.0700)										
5. CR	0.28**	0.27**	0.18**	0.21**	1								
	(0.0000)	(0.0000)	(0.0002)	(0.0000)									
6. TAT	0.42**	0.46**	0.31	0.43***	0.32	1							
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)								
7. TANG	0.35**	0.53**	0.27**	0.22**	0.22	0.41	1						
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)							
8. GROW	0.26**	0.41**	0.51*	0.38	0.30	0.20***	0.36**	1					
	(0.0000)	(0.0000)	(0.0000)	(0.0000)*	(0.0000)	(0.0002)	(0.0008)**						
9. SIZE	0.29**	0.32**	0.26	0.23	0.18*	0.22	0.55	0.29	1				
	(0.0600)	(0.0000)*	(0.0000)	(0.0000)**	(0.0000)	(0.0600)	(0.0000)	(0.0000)					
10. AGE	0.48**	0.22**	0.40**	0.43	0.48	0.37	0.44*	0.37**	0.41	1			
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)				
11. BS	0.31**	0.31***	0.43*	0.29***	0.51*	0.47***	0.16**	0.29**	0.29*	0.43*	1		
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)			
12. BI	0.46**	0.34***	0.56**	0.31***	0.33**	0.32**	0.36**	0.31**	0.51*	0.40*	0.42*	1	
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0025)	(0.0000)		
13. BGD	0.45**	0.19*	0.34*	0.34**	0.36**	0.29***	0.51*	0.45**	0.28*	0.39*	0.24*	0.52*	1
	(0.0000)*	(0.0000)	(0.0000)**	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)*	(0.0000)	(0.0000)	
VIFs	–	–	1.25	1.30	1.11	1.32	1.13	1.12	1.34	1.56	1.64	1.44	1.50
Tolerance	–	–	0.85	0.77	0.96	0.74	0.82	0.97	0.83	0.90	0.73	0.75	0.84

Notes: ***, ** and * denote significance at the 1%, 5%, and 10% levels, respectively.

VIFs denote variance inflation factors for explanatory variables.

Variables were winsorized at the 5th & 95th percentiles so as to minimize the effect of possible extreme values acting as outliers.

Table 5. System GMM Regression Results for the Relationship Between CSR and FP (ROA and TQ), Without Moderation Interaction.

Variables	Model 1 ROA No Interaction	Model 2 TQ No Interaction
Constant	1.9276 (0.2021)	1.5325 (0.2125)
Main independent variable		
CSR	0.1412** (0.0485)	0.1264** (0.0517)
One-year lagged dependent variable		
$ROA_{(t-1)}$ and $TQ_{(t-1)}$	0.6918*** (0.1914)	0.471*** (0.2035)
Control variables		
DER	–0.0069*** (0.0034)	–0.0089*** (0.0031)
CR	0.0421* (0.0197)	0.0401* (0.0164)
TAT	0.0382** (0.0155)	0.0321** (0.0146)
TANG	0.0515*** (0.0142)	0.0499*** (0.0183)
GROW	0.0264*** (0.0131)	0.0230*** (0.0145)
SIZE	0.0398** (0.0127)	0.0364** (0.0139)
AGE	0.0146* (0.0116)	0.0138* (0.0125)
Moderating variables		
BS	0.0201*** (0.0112)	0.0164*** (0.0103)
BI	0.0136*** (0.0099)	0.0124*** (0.0070)
BGD	0.0165*** (0.0131)	0.0158*** (0.0121)
Interaction terms		
Centering CSR * Centering BS	–	–
Centering CSR * Centering BI	–	–
Centering CSR * Centering BGD	–	–
Weighted statistics		
R^2	0.6857	0.6736
Adjusted R^2	0.6442	0.6357
F-statistics	197.99	199.45
Prob(*F*-statistics)	0.0000	0.0000
Mean VIF	1.6272	1.5452
AR(1) *p* value	0.004	0.003
AR(2) *p* value	0.7516	0.7579
Hansen OIR	0.3610	0.3346
Observations	396	396
Group count	36	36
Instrument count	22	22

Notes: The robust standard errors (*SE*s) are reported in parentheses.
Each model estimation incorporated both time and industry dummies, but the estimates are not reported.
***, ** and * denote significance at the 1%, 5%, and 10% levels, respectively.
The use of the word centering indicates that mean centering were applied before introducing the interaction terms in the regressions models as a means of alleviating structural multicollinearity issues.

reasonable, depicting that the independent variables explained substantial proportions of the variances in the dependent variables. The *F*-statistics values for all 4 models are also reasonable depicting satisfactory overall performance and model fit. Therefore, Table 5 results demonstrate statistical validity for all four models.

With respect to the non-moderated regression results, Models 1 and 2 show that CSR had a positive and significant (at 5%) influence on FP. This implies that firms that invested more in CSR activities improved their financial performance in terms of ROA and TQ. Consequently, the benefits of investing in CSR programs are that they yield a positive comeback of the markets, surge earnings, and strengthen the solidness of entire financial growth/development. This is consistent with the theoretical proposition of the stakeholder theory that, when all of a firm's stakeholder requirements are equally addressed, the firm's core economic responsibility, that is, shareholder wealth maximization via returns-generation (both dividends and capital gains) for stockholders is also met, resulting in improved firm image and reputation and hence enhanced FP (Nyeadi et al., 2018). These findings support hypothesis 1 [H_1] and it conforms with the findings of authors such as Nyeadi et al. (2018), Feng et al. (2018), Javeed and Leven (2019), Waheed et al. (2021). This result, however, is at Caretta with the theoretical prediction of the agency cost theory which contends that firms that inject funds into CSR projects distract the firms' fundamental mandate of creating wealth for the providers of equity capital to the business thereby impacting FP adversely. Concerning the control variables, except for DER which recorded a negative impact on FP-(ROA and TQ), all the other six control variables exhibited positive influences on FP-(ROA and TQ).

DER exhibiting a negative association with FP-(ROA and TQ), shows that companies that are highly geared performed poorly concerning ROA and TQ which could conjecturally be attributed to the high cost of debt financing emanating from high-interest rates on loanable funds on the Ghanaian financial market which invariable impacted unfavorably on FP-(ROA and TQ). This result is in line with Kim et al. (2014), Yang and Baasandorj (2017), and Nyeadi et al. (2018).

CR relates positively with ROA and TQ, suggesting that profitable listed firms embarked on prudent liquidity management via sound working capital management, which culminated in improved FP-(ROA and TQ). This result is in line with the findings of Agyei, Sun, and Abrokwah (2020).

TAT also associates positively with FP-(ROA and TQ), implying that listed firms with high sales generation via total assets utilization achieved high FP(-ROA and TQ). This result conforms with the findings of Agyei et al. (2020).

TANG also correlates positively with FP-(ROA and TQ), meaning, listed firms with high investment in fixed assets experienced an improvement in FP-(ROA and TQ). This finding is in line with the findings of Agyei et al. (2020).

GROW relates directly with FP-(ROA and TQ), signifying that, high sales growth levels resulted in improved FP-(ROA and TQ). This result is in line with the findings of Agyei et al. (2020).

Similarly, SIZE associates positively with FP-(ROA and TQ), depicting that larger firms performed comparably better than their smaller counterparts, as larger institutions optimize their economies of scale in addition to the fact that they are better placed to access funding opportunities from the investment world both debt and equity, while smaller firms do not have such advantages. Thus, larger firms

are in a position to inject huge resources into CSR projects and reap their corresponding benefits consistent with the stakeholder theory. This result tally with the findings of Agyei et al. (2020) but is at loggerhead with Nyeadi et al. (2018) and Waheed et al. (2021).

Likewise, AGE correlates positively with FP-(ROA and TQ), suggesting that aged firms performed comparatively better than their younger counterparts as long-lived institutions have developed better operational and managerial competencies through direct/indirect on-the-job experience resulting in improved FP-(ROA and TQ). These findings are consistent with the findings of Agyei et al. (2020) but contrary to Kim et al. (2014), Yang and Baasandorj (2017), Nyeadi et al. (2018), Waheed et al. (2021).

Concerning the moderated interaction linear multiplicative regression effect, all three CG elements of BS, BI, and BGD moderated the association between the CSR index and FP-(ROA and TQ) (evident in the significant results generated from the CSR*BS, CSR*BI, and CSR*BGD interaction presented in Tables 6 and 7). With regards to Model 3 for ROA, the results of the moderated interaction linear multiplicative regression analysis depict that the coefficient of the interaction terms between [CSR and BS (CSR × BS)]; [CSR and BI (CSR × BI)]; and [CSR and BGD (CSR × BGD)] were 0.2198; 0.2205 and 0.2030, respectively positive and significant at 5% level, supporting H_2 H_3 H_4, respectively for ROA. This is also the case for Model 4 for TQ as can be seen in Table 7. The results of the moderated interaction regression analysis suggest that, as firms practice good CG (arising from the influential activities of the number of members on the board, independency on the board and BGD) reflected in better monitoring and control of managerial behavior, coupled with greater alignment with all stakeholders' interests, translated into higher firm ability to access funds from financial institutions, improving the cash inflow generating pattern of listed firms, which translated into firms ability to engage in well thought through CSR programs that eventually improved FP.

This study's theoretical proposition formulated in the hypotheses has been confirmed by the significance of the interactions in the study's results presented in Tables 6 and 7. Furthermore, the complementary relationships between the three CG metrics of BS, BI and BGD and CSR has been corroborated via the synergistic impact of the moderated interaction. The confirmation is verified in the statistically significant and positive association between the moderated interaction terms and the performance metrics of ROA and TQ of listed firms in Ghana. The implication of the study results is that the interaction term has a significant marginal effect on FP so far as listed firms on the GSE are concerned. The results from the study's findings can also be interpreted that, with the inculcation of the moderators (BS, BI and BGD) into the regression models, the moderators positively influenced (positively interaction) the association between the main/only prognostic variable (CSR) and the criterion variables (ROA and TQ), which had been tremendously enhanced.

This study's findings are in line with the stakeholder theory which opines that, when all of a firm's stakeholder requirements are equally addressed, the firm's core economic responsibility, that is, shareholder wealth maximization via

returns-generation (both dividends and capital gains) for stockholders is also met, resulting in improved firm image and reputation and hence enhanced FP (Nyeadi et al., 2018).

Robustness Checks

This study investigated the impact of CSR on the performance of listed firms in Ghana, via the moderating role of BS, BI and BGD. A robust dynamic panel two-step system GMM was espoused for the empirical estimation. In order to check the robustness of the study findings, the results were subjected to some robustness tests via using an alternative econometric estimation technique this time a static econometric estimation technique, that is, FE. The FE was used after performing all necessary and prerequisite tests, that is, Hausman specification test (HST) to determine the appropriateness of the FE as against the RE. In addition, an alternative measure of accounting profitability, that is, ROE was employed to test the study's robustness. The results of this exercise are presented in Tables 8 and 9. The findings in Table 5 is consistent (in terms of analogous expected theoretical

Table 6. System GMM Regression Results for the Relationship Between CSR and ROA as Dependent Variable, with Moderation Interaction.

Variables	Model 3 ROA With Interaction	Model 4 ROA With Interaction	Model 5 ROA With Interaction
Constant	2.9879	3.2473	2.6136
	(0.3125)	(0.3587)	(0.3258)
Main independent variables			
CSR	0.1521**	0.1598**	0.1510**
	(0.0551)	(0.0678)	(0.0403)
One-year lagged dependent variables			
$ROA_{(t-1)}$ and $TQ_{(t-1)}$	0.7126***	0.9874**	0.6023***
	(0.1874)	(0.1752)	(0.1887)
Control variables			
DER	–0.0058***	–0.0049***	–0.0068***
	(0.0018)	(0.0012)	(0.0019)
CR	0.0447*	0.0481*	0.0396*
	(0.0201)	(0.0019)	(0.0088)
TAT	0.0398**	0.0487**	0.0413**
	(0.0175)	(0.0152)	(0.0151)
TANG	0.0556***	0.0598***	0.0512***
	(0.0144)	(0.0142)	(0.0142)
GROW	0.0278***	0.0325***	0.0271***
	(0.0143)	(0.0136)	(0.0121)
SIZE	0.0399**	0.0412**	0.0354**
	(0.031)	(0.0292)	(0.0107)
AGE	0.0153*	0.0251*	0.0122*
	(0.0127)	(0.0220)	(0.0103)

(Table 6 continued)

(Table 6 continued)

Variables	Model 3 ROA With Interaction	Model 4 ROA With Interaction	Model 5 ROA With Interaction
Moderating variables			
BS	0.0212***	0.0322***	0.0201***
	(0.0103)	(0.0112)	(0.0119)
BI	0.0142***	0.0157***	0.0144***
	(0.0089)	(0.0056)	(0.0129)
BGD	0.0179***	0.0194***	0.0155***
	(0.0128)	(0.0130)	(0.0133)
Interaction terms			
Centering CSR * Centering BS	0.2167**		
	(0.0808)		
Centering CSR * Centering BI		0.2312**	
		(0.0401)	
Centering CSR * Centering BGD			0.2027**
			(0.0448)
Weighted statistics			
R^2	0.6848	0.6891	0.6801
Adjusted R^2	0.6501	0.6524	0.6552
F-statistics	197.28	199.35	198.97
Prob(*F*-statistics)	0.0000	0.000	0.0000
Mean VIF	1.7872	1.8471	1.7313
AR(1) *p* value	0.002	0.003	0.001
AR(2) *p* value	0.7719	0.7852	0.7316
Hansen OIR	0.2925	0.3144	0.3258
Observations	396	396	396
Group count	36	36	36
Instrument count	22	22	22

Notes: The robust standard errors (*SE*s) are reported in parentheses.
Each model estimation incorporated both time and industry dummies, but the estimates are not reported.
***, ** and * denote significance at the 1%, 5%, and 10% levels, respectively.
The use of the word centering indicates that mean centering were applied before introducing the interaction terms in the regressions models as a means of alleviating structural multicollinearity issues.

Table 7. System GMM Regression Results for the Relationship Between CSR and TQ as Dependent Variable, with Moderation Interaction.

Variables	Model 6 TQ With Interaction	Model 7 TQ With Interaction	Model 8 TQ With Interaction
Constant	2.2364	3.1753	2.5951
	(0.3253)	(0.3654)	(0.3325)
Main independent variables			
CSR	0.1465**	0.1473**	0.1399**
	(0.0502)	(0.0607)	(0.0421)
One-year lagged dependent variables			
$ROA_{(t-1)}$ and $TQ_{(t-1)}$	0.7013***	0.9775**	0.5932***
	(0.1775)	(0.1725)	(0.1872)

(Table 7 continued)

(Table 7 continued)

Variables	Model 6 TQ With Interaction	Model 7 TQ With Interaction	Model 8 TQ With Interaction
Control variables			
DER	–0.0061***	–0.0051***	–0.0070***
	(0.0016)	(0.0013)	(0.0025)
CR	0.0420*	0.0448*	0.0387*
	(0.0199)	(0.0018)	(0.0076)
TAT	0.0344**	0.0401**	0.0321**
	(0.0164)	(0.0146)	(0.0149)
TANG	0.0547***	0.0602***	0.0522***
	(0.0145)	(0.0150)	(0.0150)
GROW	0.0251***	0.0299***	0.0250***
	(0.0132)	(0.0142)	(0.0119)
SIZE	0.0391**	0.0410**	0.0333**
	(0.031)	(0.0212)	(0.0116)
AGE	0.0243*	0.0249*	0.0240*
	(0.0125)	(0.0211)	(0.0112)
Moderating variables			
BS	0.0211***	0.0301***	0.0210***
	(0.0112)	(0.0103)	(0.0119)
BI	0.0139***	0.0149***	0.0135***
	(0.0090)	(0.0044)	(0.0106)
BGD	0.0165***	0.0177***	0.0159***
	(0.0121)	(0.0130)	(0.0129)
Interaction terms			
Centering CSR * Centering BS	0.2154**		
	(0.0817)		
Centering CSR * Centering BI		0.2201**	
		(0.0401)	
Centering CSR * Centering BGD			0.2008**
			(0.0403)
Weighted statistics			
R^2	0.6832	0.6882	0.6800
Adjusted R^2	0.6510	0.6502	0.6501
F-statistics	198.55	199.98	197.66
Prob(*F*-statistics)	0.0000	0.000	0.0000
Mean VIF	1.5614	1.6325	1.8258
AR(1) *p* value	0.001	0.002	0.003
AR(2) *p* value	0.6524	0.6634	0.7110
Hansen OIR	0.2877	0.2985	0.3014
Observations	396	396	396
Group count	36	36	36
Instrument count	22	22	22

Notes: The robust standard errors (*SE*s) are reported in parentheses.
Each model estimation incorporated both time and industry dummies, but the estimates are not reported.
***, ** and * denote significance at the 1%, 5%, and 10% levels, respectively.
The use of the word centering indicates that mean centering were applied before introducing the interaction terms in the regressions models as a means of alleviating structural multicollinearity issues.

Table 8. Robustness Checks: Fixed Effect Regression Results of CSR and Other Explanatory Variables Effect on ROE as the Dependent Variable.

Variables	Model 3 ROE With Interaction Standardized β (*SE*)	Model 4 ROE With Interaction Standardized β (*SE*)	Model 5 ROE Interaction Standardized β (*SE*)
Constant	1.8925	1.9854	2.0255
	(0.3247)	(0.2581)	(0.3654)
Main independent variables			
CSR	0.1459**	0.1489**	0.1412**
	(0.0836)	(0.0824)	(0.0658)
Control variables			
DER	–0.0079***	–0.0071***	–0.0081***
	(0.0217)	(0.0215)	(0.0217)
CR	0.0318*	0.0325*	0.0312*
	(0.0248)	(0.0250)	(0.0255)
TAT	0.0246**	0.0251**	0.0241**
	(0.0227)	(0.0214)	(0.0210)
TANG	0.0502***	0.0612***	0.0495***
	(0.0356)	(0.0364)	(0.0341)
GROW	0.0282***	0.0301***	0.0254***
	(0.0243)	(0.0250)	(0.0261)
SIZE	0.0202*	0.0278*	0.0199*
	(0.0325)	(0.0311)	(0.0312)
AGE	0.0145*	0.0182*	0.0140*
	(0.0259)	(0.0214)	(0.0251)
Moderating variable			
BS	0.0199***	0.0221***	0.0158***
	(0.0056)	(0.0079)	(0.0069)
BI	0.0147***	0.0176***	0.0141***
	(0.0077)	(0.0012)	(0.0028)
BGD	0.0171***	0.0179***	0.0168***
	(0.0092)	(0.0088)	(0.0075)
Moderation interaction terms			
Centering CSR * Centering BS	0.2241**	0.2298**	0.2240**
	(0.0924)	(0.0943)	(0.0913)
Centering CSR * Centering BI	0.2375**	0.2384**	0.2370**
	(0.1547)	(0.1571)	(0.1523)
Centering CSR * Centering BGD	0.2743**	0.2778**	0.2741**
	(0.1636)	(0.1657)	(0.1624)
Weighted statistics			
R^2	0.6055	0.6125	0.6397
Adjusted R^2	0.5834	0.5934	0.6234
F-statistics	98.04	99.64	97.24
Prob(*F*-statistics)	0.0000	0.0000	0.0000
Observations	396	396	396
Group count	36	36	36

Notes: The robust standard errors (*SE*s) are reported in parentheses.
***, ** and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 9. Robustness Checks: Fixed Effect Regression Results of CSR and Other Explanatory Variables Effect on TQ as the Dependent Variable.

Variables	Model 6 TQ With Interaction Standardized β (*SE*)	Model 7 TQ With Interaction Standardized β (*SE*)	Model 8 TQ With Interaction Standardized β (*SE*)
Constant	1.8895	2.1472	2.0147
	(0.3342)	(0.3654)	(0.3125)
Main independent variables			
CSR	0.1463**	0.1492**	0.1392**
	(0.0434)	(0.0412)	(0.0412)
Control variables			
DER	–0.0087***	–0.0081***	–0.0092***
	(0.0221)	(0.0121)	(0.0132)
CR	0.0431*	0.0482*	0.0413*
	(0.0288)	(0.0142)	(0.0102)
TAT	0.0341**	0.0383**	0.0323**
	(0.0604)	(0.0247)	(0.0511)
TANG	0.0467***	0.0498***	0.0411***
	(0.0247)	(0.0123)	(0.1623)
GROW	0.0242***	0.0298***	0.0240***
	(0.0231)	(0.0210)	(0.0201)
SIZE	0.0379**	0.0398**	0.0351**
	(0.0247)	(0.0213)	(0.0221)
AGE	0.0155*	0.0186*	0.0150*
	(0.0405)	(0.0411)	(0.0412)
Moderating variable			
BS	0.0177***	0.0185***	0.0171***
	(0.0062)	(0.0061)	(0.0059)
BI	0.0168***	0.0176***	0.0161***
	(0.0066)	(0.0522)	(0.0545)
BGD	0.0254***	0.0297***	0.0125***
	(0.0112)	(0.0121)	(0.0112)
Moderation interaction terms			
Centering CSR * Centering BS	0.2264**	0.2398**	0.2121**
	(0.0802)	(0.0810)	(0.0811)
Centering CSR * Centering BI	0.2334**	0.2554**	0.2221**
	(0.1540)	(0.0150)	(0.0741)
Centering CSR * Centering BGD	0.2251**	0.2354**	0.2130**
	(0.1401)	(0.0124)	(0.0132)
Weighted statistics			
R^2	0.6485	0.6347	0.6416
Adjusted R^2	0.6237	0.6134	0.6324
F-statistics	99.98	98.47	97.58
Prob(*F*-statistics)	0.0000	0.0000	0.0000
Observations	396	396	396
Group count	36	36	36

Notes: The robust standard errors (*SE*s) are reported in parentheses.
***, ** and * denote significance at the 1%, 5%, and 10% levels, respectively.

signs and significance at all conventional levels) with those reported in Table 6 and as such the study is deemed to have the required reliability, validity, and robustness. The results from the alternative accounting profitability measure, that is, ROE are also similar to that of the ROA results, further supporting the robustness of the study.

Conclusion and Limitations

This research examined the moderating role of BS, BI and BGD on the association between CSR and FP-(ROA and TQ). Espousing a robust system-GMM, which controlled for unobserved heterogeneity, heteroscedasticity, simultaneity, reverse causality, endogeneity, overidentification issues, first and second-order serial-correlation in errors and contemporaneous/cross-sectional dependence, the study concluded that, all the predictors had a statistically significant impact on FP. Except for DER which recorded an indirect relationship with FP, all the other predictors exhibited direct relationships with FP. Furthermore, BS, BI, and BGD moderated the relationship between CSR and FP. This inquiry corroborates the stakeholder theory in the Ghanaian context in explicating the CSR-FP nexus. This inquiry's findings are generally consistent with similar research results in the extant literature.

There are several policy, managerial and scholarly implications of this study that is highly imperative for corporate financial managers and impending research for the improvement of CSR activities. The study recommends businesses to improve their profitability levels via engaging in diversified capital budgeting projects that yields positive net present values to ensure firm's self-sustainability as this is the first stage that guarantee that businesses would be in a position to give back to society via CSR programmes. To ensure improved FP via enhanced profitability, corporate financial managers should utilize more retained earnings as internal financing source to minimize the high-interest cost on debt financing. In addition, the study recommends policymakers and GSE's authorities to revamp Ghana's capital market to encourage equity investment in other to enable businesses access long-term capital necessary for their business operations.

This study's implication is to aid institutional managers make decisive financial decisions on CSR (i.e., invest in CSR projects and not to ignore CSR activities) so as to optimize the benefits associated with equally meeting all stakeholder needs in other to improve overall corporate image and reputation with the replica effects reflected in enhanced FP.

In so doing, business owners must examine their board mechanisms and ensure that the board is well-structured in terms of its composition (enforcement of a fair representation on the board in terms of outside/non-executive directors), size and gender diversity (noting that, evidence from this present study has revealed that large BS and the presence of female directors on the board did affect CSR decision-making to further influence FP). Familiarity with this may have crucial consequences for firms' CSR dispersion.

Furthermore, businesses should ascertain the societal issues prevalent where they operate and formulate excellent solutions to address these problems.

This study is not without limitations. This current inquiry was wholly based on companies operating on the GSE, abandoning companies not listed on the GSE. The econometric estimation equations excluded some macroeconomic control variables like taxation, gross domestic product, inflation, exchange rate, interest rate. Consequent studies should consider the incorporation of these macroeconomic metrics and the activities of other companies not listed on the GSE to have a larger view of the impact of CSR on FP in Ghana.

Code Availability Statement

The author declare that STATA codes for running the estimations for this article will be available upon request.

Data Availability Statement

The author declare that there is perfect data transparency and data will always be available at any time upon request.

Declaration of Conflicting Interests

I hereby confirm that there is no actual or potential conflict of interest including any financial, personal, or other relationships with other people or organizations within three years of beginning the submitted work that could inappropriately influence, or be perceived to influence, the work.

Ethical Approval

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Article

Pathways to Consolidate Corporate Governance by Incorporating Gaps in Management Accounting Practices: An Integrative Literature Review Research Approach

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Abstract

Corporate governance receives considerable attention from various stakeholders due to the search for potential agents that cause threats to sound corporate management practices. The fall of Enron and Arthur Anderson was an eye opener toward the journey of long years of corporate scandals and corruption. The Sarbanes-Oxley Act of 2002, which includes various codes and guidelines, evolved as an immediate solution to the problem. Traditionally, accounting has become an integral part of managing corporate governance as it is central to generating financial information for various stakeholders. However, research attention, so far, centers around public accountants due to their universal legitimacy in performing public account attestation services. Management accountants can also play important roles in strengthening corporate governance by instilling sound management accounting practices in various corporate affairs where governance is under threat. This dimension is grossly ignored in the existing literature, narrowing the role of accounting in a broader spectrum of governance. Applying the integrative literature review method as an epistemological paradigm, this study undertakes a theoretical attempt to highlight the roles that management accountants can play

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in strengthening the governance of firms from both external and internal perspectives. The incremental contribution of the article is to enlarge the remit of corporate governance by aligning the functionalities of management accountants with the mainstream study of corporate governance. It opens further research agendas for academics, practitioners, regulators, and other stakeholders.

Keywords

Corporate governance, management accounting practices, integrative literature review, management accounting practice gaps

JEL Classification: G34, M40

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Introduction

There is no strong reference regarding the genesis of governance and its absorbance in the business spectrum. Since the development of a corporate form of business, a potential conflict between owners and managers has been observed, from which corporate governance (CG) evolves (Wells, 2010). The concept of separating ownership from control is further extended by Berle and Means (1932) by considering large US organizations, which eventually becomes a solid foundation for CG. The US economy witnessed a consistent boom after World War II, with a surprising growth in its leading corporations. The governance (internal) of companies was grossly missing during this period of prosperity (Cheffins, 2009). During this era, "managed corporations" were the US economic vanguard, where managers took the leadership and directors and owners followed.

The attention given to analyzing the state of CG during the 1970s and 1980s was exclusively directed toward US corporations (Denis & McConnell, 2003). However, there had been a radical change in the pattern, style, and coverage of research on CG globally by 2003 (Denis & McConnell, 2003). This is due to the demonstration of high-level corporate scandals and corruption that have been exposed, leading to a big question on the inherent governance mechanism. Prevention, very importantly, receives the highest attention, which may be addressed through the enforcement of various management control mechanisms. CG has received considerable attention as an antidote to corruption.

No formal definition directly addresses the principles of good governance. Rather, these principles have been identified and discussed by researchers, different committees, and practitioners, considering the underlying context. It will be a serious challenge to accommodate all relevant aspects systematically archived in the literature. Existing governance frameworks are reportedly inadequate because they consider governance from only a compliance perspective (Seal, 2006). In the context of this "ticking the box" culture, accounting research has concentrated primarily on how CG impacts financial accounting (Al Lawati et al., 2021). This perspective

limits the scope of such research to external CG mechanisms, ignoring the alignment and integration of external requirements with internal organizational processes (Ratnatunga & Alam, 2011). As the management accountant perspective has rarely been considered in CG research (Ratnatunga & Alam, 2011), our study fills this gap. This study takes the following research questions:

> What roles do management accountants play in strengthening corporate governance?
> How does management accounting practice impact corporate governance beliefs in firms?

This study deploys an integrative literature review method to generate thematic materials in support of the research questions. The principal debate on which the article develops its research theme is that external auditors remain at the center, acting as mediators of agency problems in the CG mechanism. As a proxy measure of CG, regulators always rely on accuracy in financial reporting. However, the interplay of internal and external mechanisms may strengthen the CG thinking of firms, whereby management accounting takes entry into the scene. This study argues that CG receives a complete structure when management accounting practices are implemented properly to address the requirements of major stakeholders. The remaining part of the study is structured as follows: the second section presents a literature review, which is followed by the research method in the third section. The fourth section covers the analysis and findings of the study. Finally, the article concludes in the fifth section.

Literature Review

Research in CG has received wider attention during the past two decades and covers a wide array of disciplines, including business, sociology, and economics (Aguilera et al., 2015). Researchers have brought a few relevant literature to identify gaps in the current study. Accounting has long been utilized as a tool to attain ideal CG (Seal, 2006). The recent moves in regulatory changes confirm the added importance of accounting information for CG purposes (e.g., Basel Committee, 2010). In a study by Olojede and Erin (2021), the relationship between CG mechanisms and creative accounting practices has been investigated in Nigeria to understand the impact of the Financial Reporting Council of Nigeria (FRCN) Act. The study investigates the role of the FRCN Act in improving CG mechanisms while reducing creative accounting practices. Rather than protecting the rights and interests of a particular group of stakeholders (say, shareholders), quality accounting information should target all stakeholders. Otherwise, it will develop an unbalanced impact, leading to the deterioration of the governance system (Zou, 2019). To instill and improve a sound governance structure, there is no alternative other than specific and quality accounting information (Tang, 2015).

Most of the literature on CG addresses the quality of accounting information, chartered accountants' roles, general accounting, etc. Several studies address the nexus between financial accounting information and CG, including the contribution of financial accounting information in promoting the governance of corporations (Bushman & Smith, 2001) and in providing required information for implementing

governance mechanisms (Sloan, 2001). Nevertheless, few studies (Christine et al., 2011) have addressed the efficacy of management accounting systems in establishing CG mechanisms. Studies (e.g., Indjejikian & Matejka, 2006) also find that management accounting systems, in effect, serve two principal purposes, namely, improving controls and enhancing decision-making. Other studies also confirm that management accounting generates the required information to plan and control activities in an organization (Siti et al., 2011). In another study, Honggowati et al. (2017) look for any impact of CG on the extent of strategic management accounting disclosure in organizations and find that different CG parameters have different patterns of impact on the strategic management accounting disclosure level.

Various management accounting practices used in organizations have implications, either to a smaller or greater extent, in CG (Seal, 2006). It is important to confirm that necessary reporting and monitoring activities are accommodated internally in organizations without limiting the role of auditors and relevant regulators as external monitors (Seal, 2006). To ensure internal governance, importance is given to management accountants who are certified and, at the same time, whose activities are guided by a defined ethical code. It never relies on simply a heterogeneous body of management accounting tools and techniques (Seal, 2006). To be specific, management accountants possess the ability to apply the CG narrative to withstand the potential threat to their profession that may be caused by the manipulation of their understanding and knowledge of management accounting tools and techniques. Concerning this proposition, this study argues that accounting practices help to develop the culture of governance thinking in firms. As there is a dearth of studies addressing these issues in existing literature, this study considers it a potential research gap and conducts an archival analysis to guide further research in this area.

Research Methodology

This study uses the literature review method to answer the research questions. The literature review method is one of the best methodological tools to find answers to various research questions (Snyder, 2019). This study develops a solid foundation to advance the knowledge of CG and its connection with management accounting by confirming findings and perspectives from various published works. To emerge something beyond the replication of previous results, a high-quality literature review needs to uncover mysteries in choosing relevant articles to gather data and additional insights (Palmatier et al., 2018). Through this method, our special focus is on (a) discussing relevant literature in selected areas, (b) identifying gaps in existing research, and (c) creating new research agendas. To assess, analyze, and synthesize the relevant literature on CG and management accounting practices, we used integrative reviews to build new theoretical frameworks and perspectives (Torraco, 2016). It aims to critically review and re-conceptualize existing knowledge so that an extension of the theoretical basis of the selected topic can be undertaken for further exploration (Snyder, 2019). To ensure the rigor and quality of an integrative review, Whittemore and Knafl (2005) prescribed a five-step

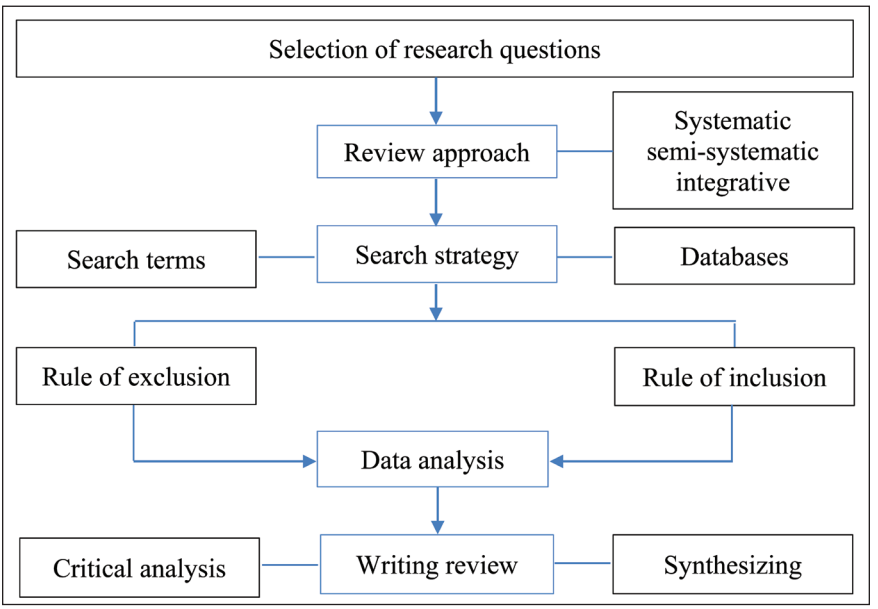

Figure 1. Literature Review Method.

method: (a) identifying the problem, (b) searching the relevant literature, (c) evaluating the captured data, (d) analyzing the selected data, and (5) presenting the findings. Similarly, our integrative review follows the steps depicted in Figure 1.

We begin by selecting a few research questions, followed by choosing the review approach. Later, it is important to finalize a search strategy to fetch the relevant literature (Snyder, 2019). A search strategy encompasses the selection of search items, relevant databases, and inclusion and exclusion criteria. We have identified four search terms: accounting, management accounting, CG, and corruption. We have selected six academic databases—Elsevier, Emerald, JSTOR, Springer, Wiley, and Taylor & Francis—for selecting relevant articles. However, it becomes difficult for us to locate appropriate articles that will help us to proceed with our research questions. Two reviewers have been recruited to help us with the process. We have then chosen the rules for inclusion, considering only specific journals within a timeframe. It also fails to serve our purpose, ending with a very faulty sample while limiting our selection to some specific journals, periods, or even search terms. We may also miss studies that contradict other studies or would have been more relevant to our case (Snyder, 2019). We have finally selected the Google Scholar database and used the selected search terms to identify relevant works for our study.

To confirm the validity and reliability of the search protocol, we have utilized the expertise of two reviewers. Since the search results yield many materials, reviewers are advised to read the abstract of each paper before selecting the article for a thorough review. Later, the researchers sit down with the reviewers to carry

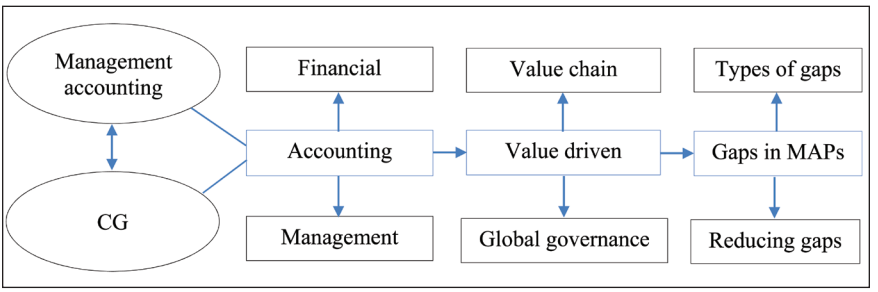

Figure 2. Conceptual Framework of the Study.

out the review step by step: (a) reading the abstracts first for the initial selection and (b) reading the full text of selected articles later to confirm the final selection (Snyder, 2019). To identify other potentially relevant articles, the researchers also checked the references of selected articles as an additional strategy.

Once the final sample is selected, the important phase of the literature review begins with the deployment of a specific technique to conduct an analysis. An integrative review doesn't follow any standard for data analysis (Whittemore & Knafl, 2005). It may follow a descriptive pattern for presenting information and may sometimes present a central idea or theoretical perspective for general understanding. The final structure of a review article is based on the selected approach, which dictates the kinds of information required and the level of detail. While writing the review, we integrate historical analysis within the field (e.g., Carlborg et al., 2014); select potential areas to conduct further research (e.g., McColl-Kennedy et al., 2017); develop theoretical models, themes, or categories (e.g., Snyder et al., 2016; Witell et al., 2016); and provide evidence relating to an effect (e.g., Verlegh & Steenkamp, 1999). We have developed a conceptual framework (Figure 2) to support us in writing an integrative review in the next section.

Analysis and Findings

The integrative literature review reveals a few key themes that guide this section. The thesis presented here is based on the existing records, which serve two purposes: first, it presents the existing state of the interplay between CG and management accounting practices, and second, it directs areas for further exploration. The whole section is segregated into four sub-sections: (a) CG, (b) accounting and CG, (c) management accountants and value chain, and (d) prevalent management accounting practice gaps to improve the governance thinking of firms.

Corporate Governance: Mechanisms, Theories, and Framework

A governance structure integrates various business policies, control mechanisms, and guidelines, driving the business toward achieving its objectives while satisfying

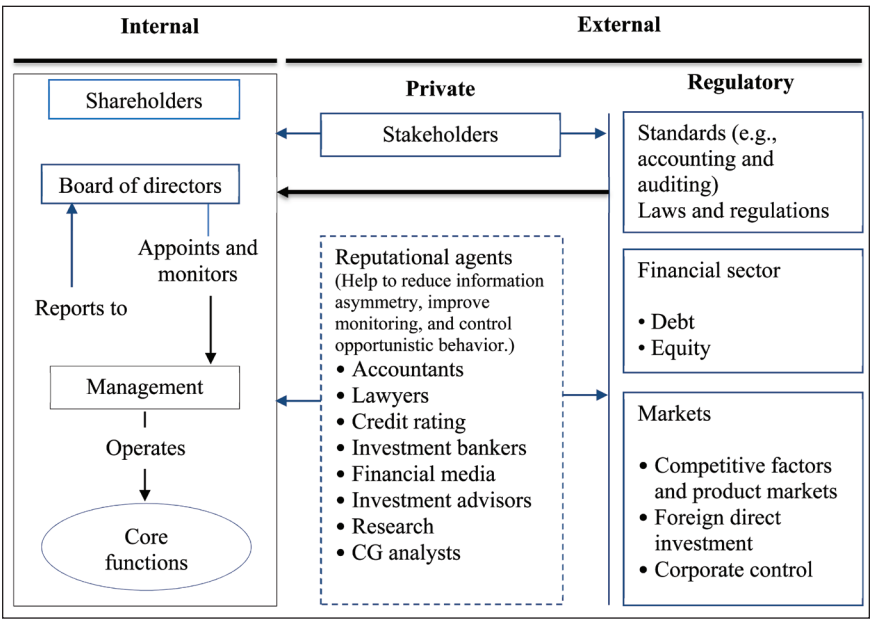

Figure 3. Governance Mechanisms of Modern Corporations.

the needs of the stakeholders (Mrabure & Abhulimhen-Iyoha, 2020). Investors prefer to invest in well-managed companies due to the presence of the CG mechanism (Mehmood et al., 2019). A strong CG mechanism helps to connect the management with the shareholders (Sehrawat et al., 2019). In a nutshell, the separation of ownership and control requires good governance and involves various mechanisms to ensure good governance (Farooq et al., 2022).

The governance mechanism (Figure 3) is divided into internal and external categories (Raithatha & Haldar, 2021). Internal mechanisms include variables characterizing a board structure, including board duality, the proportion of independent directors, debt–equity ratios, and qualifying shareholdings of executive directors (Kapil & Mishra, 2019). Internal mechanisms generate the principal sets of controls for a corporation, which monitors the progress and activities and takes corrective measures if required. They maintain the large internal control fabric while serving the internal objectives of the corporation and its internal stakeholders. These objectives include, among others, managing operations smoothly, defining reporting lines clearly, and implementing systems of performance measurement.

External control mechanisms are developed to serve the interests of entities that are external to organizations, such as governments, regulatory agencies, trade associations, different pressure groups, etc. External parties usually initiate the mechanism to impose external requirements on organizations in terms of policies, guidelines, regulations, and advice (Tian et al., 2015). It is the desire of external stakeholders that organizations at least voluntarily report the status and compliance of external governance mechanisms if it is not required mandatorily.

These external and internal mechanisms delve into a few fundamental theories of CG, that is, shareholders theory (Friedman, 1970), stewardship theory (Davis et al., 1997), upper echelons theory (Hambrick & Mason, 1984), and stakeholders' theory (Freeman, 1984). The shareholder theory states that management is responsible for maximizing the value for shareholders who act as agents of the shareholders to operate the business on their behalf, and thus, they have the moral and legal obligation to entertain the interests of the shareholders (Murphy & Smolarski, 2020). The stewardship theory presumes that managers take on the role of stewards, and they are motivated to work in the best interest of their owners. However, organizational performance largely depends on the characteristics of the top-level management, which is captured in another theory of CG, the upper echelons theory (Hambrick & Mason, 1984). In stakeholders' theory, on the other hand, managers enjoy a wider scope of coverage whereby all groups are included, not only the shareholders, whose actions or activities can affect the business (Cordeiro & Tewari, 2015). Aggregately, internal and external mechanisms generate a CG framework to reflect an interplay between internal motivations and external challenges governing the behavior and performance of firms.

In this study, our particular attention goes to the roles of management accountants and management accounting practices in strengthening CG thinking in firms. Our principal referral on the CG framework that connects management accountants and management accounting practices is prescribed by the International Federation of Accountants (IFAC) (2009). This framework is composed of the performance and conformance dimensions (Ratnatunga & Alam, 2011) representing the entire value generation, utilization of resources, and applied accountability framework of an organization (Williams & Seaman, 2014). The performance dimension focuses on various opportunities and inherent risks, business strategies, value generation, and utilization of resources, which guide the formal decision-making process in an organization. The conformance dimension, on the other hand, includes various compliance requirements in connection with laws and regulations, CG codes, accountability, transparency, and the confirmation of assurances to stakeholders.

Through the governance framework, IFAC explicitly considers both CG and business governance under a broader governance spectrum. Though there exists some form of reciprocity between conformance and performance, they also have a clear demarcation line to set their scope. Management accountants' role in the performance dimension is crucial in value creation and resource utilization (Ojra et al., 2021). Business governance is essentially practiced in firms through different management accounting techniques addressing the resource utilization motive, whereby maximum value addition for the stakeholders is targeted. On the other hand, the financial accounting stream takes care of CG through accountability and selling assurance as a form of conformance to established norms, rules, and regulations. Through this framework (Figure 4), IFAC opens the scope of management accounting into the CG realm.

Accounting and Corporate Governance

There is a dramatic change in the demand to raise the baseline compliance requirements in the field of CG practices due to serious dissatisfaction among the stakeholders (Prasad & James, 2018). A gradual shift from soft law has been observed

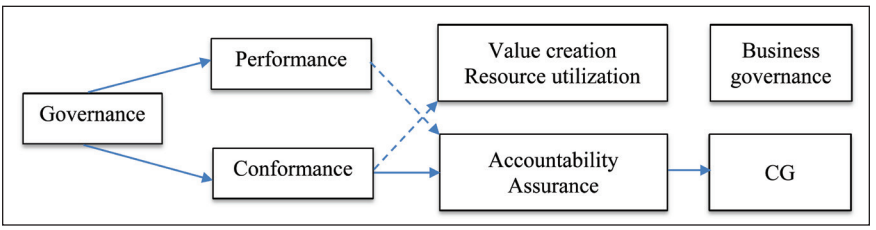

Figure 4. IFAC-Proposed Governance Framework.
Source: Adapted from IFAC (2009).

as a response to the concerns. The newly enacted SOX Act 2002 and the revised listing rules in the New York Stock Exchange and NASDAQ have uplifted mandatory requirements for financial disclosure, nominations in various committees and boards, and audit policies. Different Asian countries also introduce much stricter compliance requirements as a follow-up response. In a study, Shil (2008) summarized the events where conflicts may arise among different stakeholder groups, causing threats to the governance system. The study also prescribes mechanisms whereby accountants play important roles in resolving problems and restoring the governance system, as presented in Table 1. Some generic problems mentioned in the study are agency problems, tunneling, power (ego) crises, non-compliance, policy crises, etc. Various stakeholders are involved in corporate management, and these problems are very common to develop, causing chaos where accountants can perform as mitigators under the code of CG.

Agency problems result when personal interests receive added priority over common interests and individuals compromise with corporate goals to entertain their own goals (Guinote, 2017). When the stockholding pattern results in concentration, leaving a large number of stocks with few majority stockholders, tunneling may arise to oppress the minority shareholders who have no voice in the decision-making process (Solarino & Boyd, 2020). As compliance experts, accountants are familiar with different regulatory and other requirements and maintain proper checklists to save the company from any sort of non-compliance issues. Power crisis, on the other hand, is demonstrated at the top-level management due to the divergences in choosing the preferred course of action (Mangin et al., 2021). Accountants, through their rules and routines, can effectively handle and intervene in various issues to resolve them and accelerate the governance thinking in organizations.

Financial Accounting and Corporate Governance

CG received worldwide attention for the massive collapses of big corporate giants such as Enron, WorldCom, and others during the first decade of this century (Dibra, 2016). These failures raise a legible question about the ability of existing rules and regulations, which have collectively failed to protect the interests of stakeholders. Researchers and academicians began fresh research, and regulatory

Table 1. Role of Accounting in Ensuring Good Corporate Governance.

Stakeholders	Parties Involved	Point of Conflict	Nature of Conflict	Remedies (Accountant's Point of View)
Shareholders	Shareholders vs. board	The board receives higher remuneration, but they perform less.	Agency problem	Introduce performance-based pay
	Shareholders vs. management	Management pay is higher than their performance.		
	Shareholders vs. shareholders	Minority shareholders are deprived by controlling shareholders.	Tunneling	May reduce the gap by appropriate disclosure
Board of directors	Board vs. shareholders	Boards are responsible for sustainability but are not rewarded properly.	Reverse agency problem	Introduce result-based pay
	Board vs. management	Management cannot carry out the policy set by the board.	Goal congruence crisis	May help management introduce MBO and MBE
	Board vs. regulatory authorities	Regulatory authorities are not supportive but rather impose restrictions unnecessarily.	Policy crisis	Professional accounting bodies may advise the regulatory authorities to develop supportive rules, codes, and regulations
Management	Management vs. board	The board imposes power on management to widen the gap between them.	Power crisis	May perform as an intermediary to neutralize the impact of power-arising conflict
	Management vs. shareholders	Management is responsible for maximizing values for the owners but not paid accordingly.	Mini-agency problem	Introduce performance-based pay
Regulatory authorities	Regulatory authorities vs. board vs. management	Lack of compliance concerning various rules, codes, principles, etc.	Non-compliance	May confirm the various compliance requirements as a compliance expert
Customers	Customers vs. board vs. management	Customers want quality products at a reasonable price, but companies fail.	Demand–supply gap	May apply value-based management and other management tools to make a trade-off between cost and quality

Source: Shil (2008).

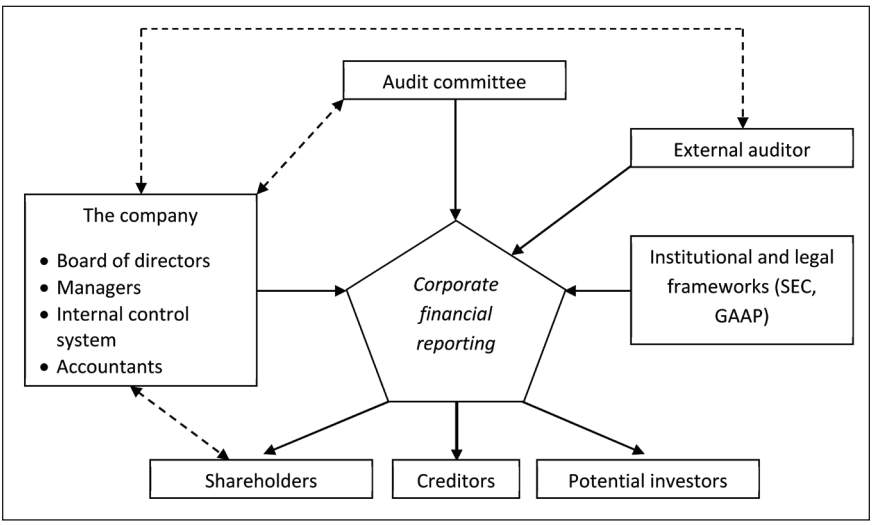

Figure 5. The Financial Reporting System.

authorities developed various codes and guidelines for immediate application. As a result, the whole world witnessed the passage and implementation of various prescriptions, for example, Sarbanes Oxley in the United States, the Cadbury Report in the United Kingdom, the Dey Report in Canada, the Vienot Report in France, the King's Report in South Africa, the Olivencia Report in Spain, the Cromme Code in Germany, and Principles and Guidelines on CG in New Zealand. In most cases, these guidelines, codes, or legal provisions aim to improve the corporate ecosystem relating to CG (Basu & Dimitrov, 2010).

Good CG aims to develop a corporate structure to ensure transparency and accountability for various stakeholder groups. Different stakeholders (Figure 5) are connected in a CG mechanism that develops an internal structure. CG mechanisms are mostly embedded in financial reporting systems in every country (Dănescu et al., 2021). Based on this financial reporting system, a code of CG is designed in different countries. In return, CG takes care of the quality of the financial reporting system (Cohen et al., 2004).

The CG mechanism and financial reporting system are intertwined. There is a high degree of overlap between various stakeholders and the purposes of these stakeholders in both the CG and financial reporting systems. The financial reporting system presents a company before external parties and produces a clear picture of the performance of the company (Dănescu et al., 2021). Financial information generated from the formal financial reporting system is the first and foremost authenticated source of information about the performance of management for external parties (Sloan, 2001). The board of directors, together with the management, prepares and validates a set of financial statements to report to the respective parties to discharge their responsibilities. Such statements will go through the attestation process by independent auditors. The auditors are employed by the owners with the duty to carry out independent review and scrutiny to come up

with an expert opinion regarding the true and fair view of the accompanied financial statements (DeFond & Zhang, 2014). Thus, they play a very important role in confirming CG through their activities.

Management Accounting and Corporate Governance

Management accounting has traditionally been intended for internal use in organizations. However, due to its ability to generate value and provide current and forward-looking information to management, it becomes an effective tool for ensuring CG (Williams & Seaman, 2010). To ensure good governance, it is a presumption that appropriate internal reporting and monitoring mechanisms are in place in addition to the support extended by external monitors such as auditors and regulators. However, making a clear distinction between financial and managerial accounting is challenging, though such a distinction holds an academic and pedagogical role (Ma et al., 2022). So far, management accounting has not received due attention in strengthening CG practices. In some instances, management accounting has been connected with CG, mentioning the contribution of different management accounting tools and techniques to facilitate governance initiatives in organizations (Mayanja & Van der Poll, 2011). The board of directors immensely benefited from using management accounting in formulating and controlling various business strategies (Salemans and Budding, 2023). Some management accounting tools used to formulate business strategies include the PESTEL framework, SWOT analysis, Porter's Five Forces model, etc.

Management control systems in organizations are also supported by management accounting reports where critical success factors are duly identified to draw the attention of decision-makers who are involved in implementing control measures as a part of broader performance management goals (Leitner & Wall, 2015). These reports provide every direction regarding the variances between actual performance and targeted performance, which enable the board to take corrective measures. A wide array of management accounting tools is extensively used while approving important financial decisions, appraising the performance of the CEO and BOD, supporting and counseling the CEO, and finally complying with CG requirements (Arif et al., 2023; Mayanja & Van der Poll, 2011).

Some of the items in financial statements received extra attention due to their ability to manipulate the information. Management accountants can play a strong role in validating those accounts as they take care of the internal control system (Ala-Heikkilä & Järvenpää, 2023). In this way, management accounting can ensure CG in financial reporting, too (Ascani et al., 2021). Based on our integrative review, we emphasized two major areas of management accounting that are found to be connected with CG. First, we cover the connection between the value chain and governance, where management accounting causes value maximization to drive organizations to generate value for owners (Merici et al., 2020). Second, we refer to various gaps that exist in management accounting practices that may be reduced further to strengthen CG practices in organizations (Shil et al., 2014).

Value Chain and Governance

Porter (1985) advocated the first value chain analysis, which was further extended by Shank (1989) and Shank and Govindarajan (1992) in the accounting literature. The sole purpose of value chain analysis is to identify, analyze, connect, and utilize various activities in the value chain and capitalize on the benefits of their synergies (Abbeele et al., 2009). The central idea of the analysis is to break up "the chain of activities that runs from basic raw materials to end-use customers into strategically relevant segments to understand the behavior of costs and the sources of differentiation" (Shank & Govindarajan, 1992). To utilize Porter's (1985) value chain analysis in management accounting, Shank and Govindarajan (1992) introduced a value chain costing method covering the costing dimension. This technique essentially considers the firm as an external element, linking it with different dimensions of value-added activities in the chain associated with the provision of products or services. To accelerate productivity via the value chain and to continue with the competitive advantage resulting from it, governance acts as an important instrument.

The core focus of CG is to ensure values for its wider stakeholder groups (Bui & Krajcsák, 2024). Management accounting practices are designed such that they can plan, monitor, and control the value-added activities of firms through implementing the value chain (Qiu et al., 2023). Business is a combination of various activities. These activities fall into either of two categories: primary or secondary. Altogether, there are nine generic activities (Figure 6). Out of these nine activities,

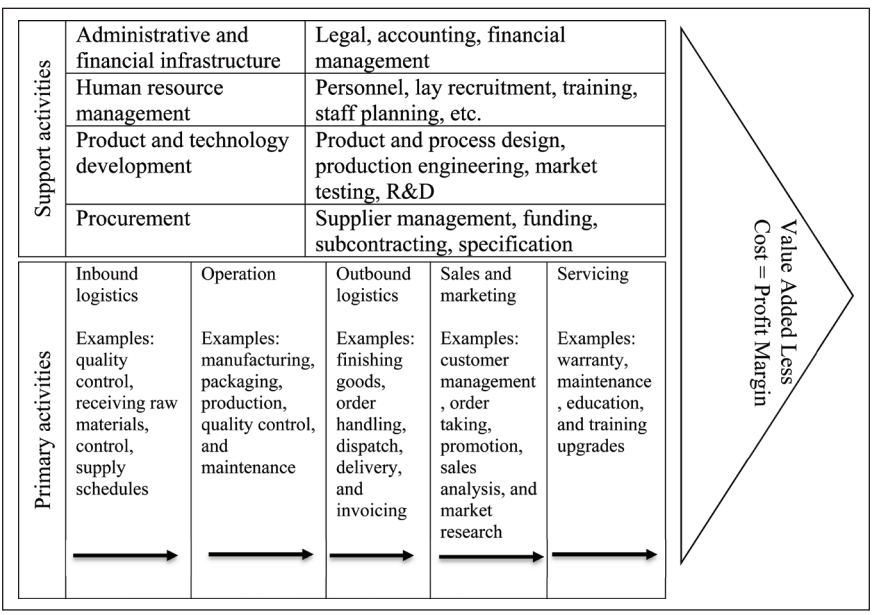

Figure 6. Value Chain.

Source: Adapted from Dahal (2018).

five fall under primary activities serving the main purpose of the business, extending its scope of activities from sourcing raw materials to after-sales services. The remaining four activities ensure the required support needed to proceed with the primary activities smoothly. These support activities in the value chain facilitate all the primary activities in four selected areas where management accountants dominate the organizational rules and routines (Dahal, 2018). Successful management of the business value chain through all these nine activities provides management accountants an opportunity to take care of the broader interests of the business in generating the required profit/margin.

There are different types of governance systems, and it is necessary to select the appropriate type relevant to the value chain (Gereffi et al., 2005). The connections between activities within a chain develop a range of value chains extending from the market characterized by arm's-length relationships to hierarchical value chains having direct ownership of production processes (Abbasi & Varga, 2022). There are three more network-styled patterns of governance within these two categories (Figure 7), that is, modular, relational, and captive (Gereffi et al., 2005; Strange & Humphrey, 2019). In modular value chains, suppliers respond to the requirements of customers while producing products and require a large volume of customized information flow. However, the lead firm emphasizes the development, penetration, and protection of markets for end products (Sturgeon, 2002). In the relational form of the value chain, buyers and sellers negotiate, developing

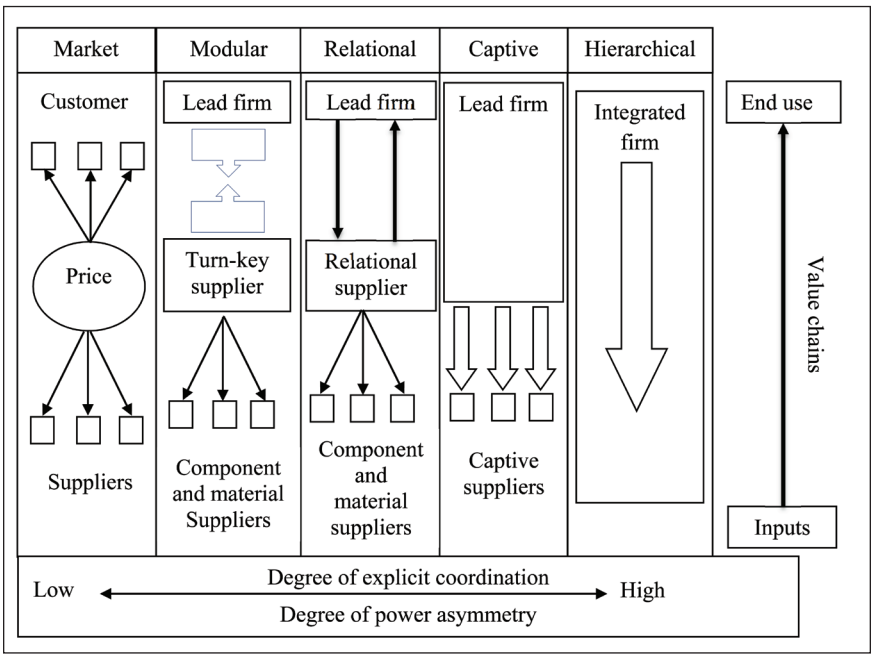

Figure 7. Typology of Governance Systems in Value Chains.

Source: Gereffi et al. (2005).

mutual dependence between them. It also permits leading firms and suppliers to respond to any emerging issues to resolve any conflicts using norms of reciprocity (Sturgeon, 2002). In captive networks, larger buyers take the market lead, and small suppliers depend on them transactionally (Gereffi et al., 2005).

Thus, value chain analysis, in its generic and extended forms, becomes an important area where management accountants and management accounting practices enhance CG. The latest developments in the field of strategic management accounting (e.g., activity-based costing and management, balanced scorecard, lean production, management, etc.) categorically prioritize value-based management, where management accountants are involved in protecting business interests (Nuhu et al., 2023). However, there exist some relational gaps at varied levels that restrict management accountants from performing to the satisfaction of stakeholders, and these gaps act as strong barriers to achieving governance (Shil et al., 2014). The next section explains the gaps in detail.

Management Accounting Practice Gaps and CG

The choice of different management accounting tools in different firms is very specific to the requirements of that firm, which are contingent upon different factors (Ojra et al., 2021). It has been witnessed that firms apply a compromised method of implementing management accounting techniques to strike a balance between practitioners' judgment and owner-managers expectations (Abed et al., 2022). This compromise limits the potential of management accountants to perform to their fullest capacity (Trevisan & Mouritsen, 2023). Shil et al. (2014) conducted a study to highlight this situation, resulting in a few gaps (Figure 8) in management accounting practices that eventually affect the governance culture of firms.

The analysis results in a total of seven gaps and nine agents. These seven gaps act as critical bottlenecks that develop compromising attitudes among the management accountants, and eventually management accounting practices fail to diffuse at the desired level. Similarly, all these nine agents form broader stakeholder groups that are very loosely connected. The further the connections are among the agents, the lesser the diffusion of management accounting practices becomes (Wolf et al., 2020). To strengthen management accountants' role in ensuring governance, it is very important to tighten the connection among the stakeholders. Shil et al. (2014) claim that when the stakeholders make a responsible move to come close to each other, shortening the boundaries of roles and responsibilities, there will be a visible improvement in governance thinking. All seven gaps have been summarized here, and such gaps exist in every economy to a different extent depending on the context of the economy.

The liaison gap (Gap 1) represents the weak effort exerted by the professional institute with the local and international regulators to instill favorable treatment. The status gap (Gap 2) exists among practitioners. Such gaps arise from positional dispersion, which develops complexities in role profiles due to perceptions of the possession of knowledge, required skill, authority-responsibility status, connectivity with power, etc. A compliance gap (Gap 3) arises when practitioners fail to

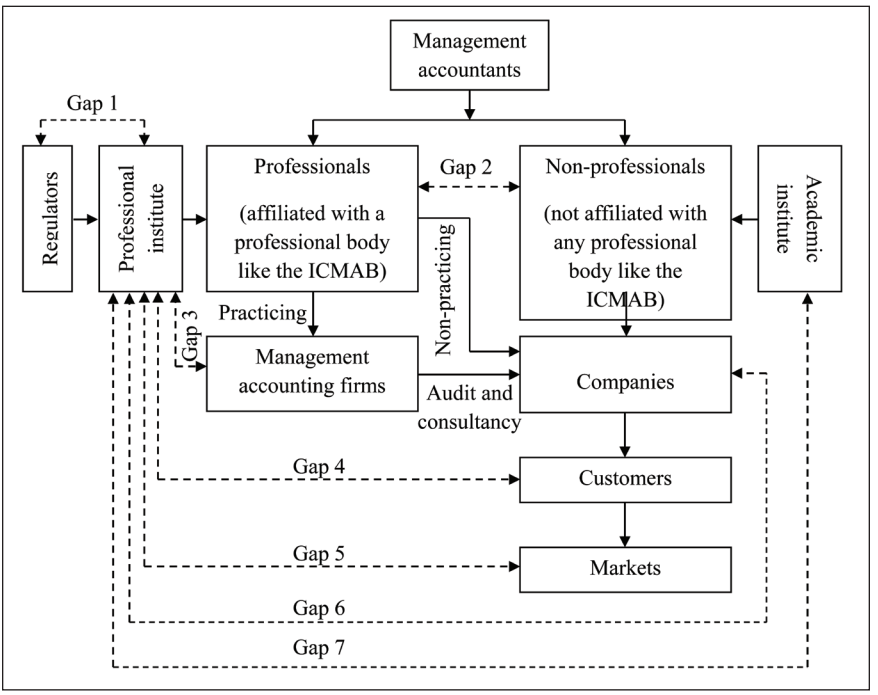

Figure 8. Gaps in Management Accounting Practices.

Source: Shil et al. (2014).

comply with various legal and regulatory requirements due to a lack of knowledge and understanding. In Bangladesh, we have some certified management accounting firms that provide cost audits, management consultancy, and other accounting and finance-related services. However, the institutes are struggling to ensure a wide variety of activities for registered firms to choose from. It has been successful in getting some regulatory directives to conduct cost audits and other certifications, against which it develops some record rules and guidelines and provides training to develop the required skillsets among the practitioners.

The satisfaction gap (Gap 4) results from a very loose connection between professional institutes and customers, whereby the institute fails to understand the requirements of customers. Management accounting practices mostly serve the interests of customers (Nair & Nian, 2017); however, there is no formal reciprocity between them in the existing setup. The institute may take the initiative to inform the customers regarding "citizens' rights" and mutually develop some understanding with the consumer association. It will accelerate the process of governance thinking among the largest group of stakeholders in the market who are currently left aside in the whole governance process. The authoritative gap (Gap 5) results from the absence of formal recognition of the profession by the market. The accounting profession works to achieve broader public interest, and thus, it requires approval from them as well. Regulatory support, trust, and belief in professionals, involvement of

professionals in social processes, and power of approval are certain parameters that signify the absence of such a gap in any market. The profession needs to consider value addition for everybody; it goes against governance if one party receives preference at the expense of another party. In Bangladesh, it is observed that the rights of employers are protected, putting less priority on the rights of others, for example, customers (Shil et al., 2014).

The surveillance gap (Gap 6) is found in the relationship between the institute and companies. The institute certifies management accountants who work for different companies. However, there exists a very loose connection between them. This loose connection is reflected in job advertisements, eligibility requirements, job descriptions, etc. The knowledge gap (Gap 7) exists between professional institutes and academic institutes. Both professional and academic institutes play a strong role in ensuring sound practices through the reciprocity of knowledge. Addressing all these gaps will bring the CG agents closer to positioning management accountants in a central role.

Conclusions

This article aims to present management accountants' roles and management accounting practices to strengthen CG by applying an integrative literature review approach. Public accountants, in effect, are involved in ensuring CG as they are in the process of attestation services. Historically, they have tried to reduce agency problems by connecting the goals of both principals and agents. However, this article argues that management accounting also serves an important role in ensuring governance via internal mechanisms (Nur et al., 2019).

IFAC (2009) prescribes a governance framework covering both corporate and business governance, thereby enlarging the scope of governance. CG is a process of conformance to different rules and regulations, while business governance requires efficient utilization of resources to achieve targeted performance. Management accounting practices, in effect, are aligned with this function. This article argues that the management accountant's job addresses resource utilization and value generation for owners and other stakeholders, which is the core focus of CG. The incremental contribution of this work is embedding the functionalities of management accountants with the conformance of CG from an internal perspective. In particular, value chain analysis and gaps in management accounting practices are discussed to open a new area of CG for further exploration.

The generic version of the value chain analysis as proposed by Porter (1985) has received considerable attention within strategic management accounting in the form of value chain costing. It takes proper care of customer value addition and resource utilization. Based on an integrative literature review, this article presents researchable arguments supporting the role of management accountants and management accounting practices in rebuilding CG in firms. It also refers to the gaps in management accounting practices as an obstacle to positioning management accounting as a tool for CG. However, the major limitation of the article is that it applies the literature review method to develop a further understanding of

CG. Further studies may be initiated by applying various quantitative and qualitative research methods to confirm the arguments of this study. A couple of papers have addressed the role of management accounting in CG (Seal, 2006; Mayanja & Van der Poll, 2011); however, this article brings an extension to that by considering gaps in management accounting practices.

Declaration of Conflicting Interests

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Article

Toward Sustainable Climate Governance: A Case Study of Risk Assessment and Management in Kullu, Himachal Pradesh

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Abstract

The imminent climate disaster demands prompt consideration and implementation of measures in susceptible areas like Kullu, Himachal Pradesh. Utilizing secondary data, this study conducts a rigorous examination of the climate risk assessment, management, and governance dynamics within the region. It aims to elucidate the complex interaction between historical climate patterns, existing vulnerabilities, and potential approaches for mitigating risks and enhancing governance. This study examines the evolving climate patterns in Kullu's region, highlighting the urgent requirement for effective water management practices and resilient agricultural strategies. The research provides advance notice of the forthcoming hydrological risks, emphasizing the need for a combination of scientific advancements and community involvement in developing effective governance approaches. Additionally, the researcher emphasizes the significance of improving early warning systems,

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promoting community-centered initiatives, and reassessing policy frameworks to cultivate a future characterized by resilience and sustainable adaptation in the region of Kullu. This study proposes that by incorporating empirical information and local knowledge, an integrative trajectory may be established to provide a sustainable road for Kullu. This pathway would enable Kullu to withstand climate adversities and promote a happy cohabitation with nature. The abstract serves as an invitation for readers to further explore the research conducted in Kullu, Himachal Pradesh. The research provides a comprehensive collection of valuable insights, strategies, and potential future directions for climate risk management in the area. It emphasizes the importance of adopting a collaborative, well-informed, and proactive approach to climate governance in the region.

Keywords

Clinical governance/decision making, environmental monitoring and analysis, government and governance, risk assessment

JEL Classification: R58, Q01, Q18, Q25, Q5

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Introduction

Background

The valley of Kullu, located in the state of Himachal Pradesh, has a wide range of ecosystems, showcasing a vibrant and diverse array of biological richness. The increasing threat posed by climate change is placing significant pressure on the existing variety, resulting in heightened vulnerabilities that are characterized by multiple dimensions (Bhardwaj et al., 2011). The assessment of climate risk in this particular location is not solely an intellectual pursuit, but rather an essential imperative, given the escalating occurrences of climate-related catastrophes such as floods and landslides, which profoundly disturb the well-being of individuals, economic activities, and the delicate ecological balance that characterizes this area.

Climate risk management and governance in the region require a complex interplay of many aspects, such as legislative frameworks, community engagement, and environmental safeguards. The current practices have been subject to extensive examination, with a focus on identifying deficiencies in the execution of policies and methods for mitigating risks. These practices are often criticized for not being sufficiently aligned with the specific circumstances and conditions of the Kullu region. The existing governance mechanisms are tasked with managing the intricate equilibrium between promoting sustainable development and addressing the negative impacts of climate change. The available scholarly sources emphasize the need for significant enhancements, advocating for a more comprehensive methodology that corresponds with the distinct sociocultural and ecological context of Kullu. This approach should promote tactics that encompass both preventive and adaptive measures (Sharma & Tomar, 2017).

Rationale

The motivation for extensively exploring climate risk assessment, management, and governance in Kullu arises from a crucial imperative to enhance the resilience of this environmentally diverse area against the detrimental impacts of climate change. Based on the researcher's expertise in environmental communication, it is evident that there is a recognized necessity to establish connections between policy narratives and grassroots realities by employing well-informed and communicative tactics.

Furthermore, a thorough comprehension of climate risk assessment, which carefully examines possible threats, weaknesses, and exposures, can play a crucial role in formulating plans that are based on actual evidence and practical circumstances. The researcher undertakes this scholarly endeavor with the aim of identifying and addressing the deficiencies in current frameworks. Additionally, the researcher seeks to establish a pathway that is built upon the principles of inclusivity, participatory governance, and scientific rigor. This pathway will guide Kullu toward a future that is resilient and equipped to effectively address the challenges posed by climate change. The research is motivated by a need to elucidate, through meticulous scholarly inquiry, a governance framework that is harmonious, incorporating insights from contemporary scientific progress and indigenous ecological knowledge, in order to cultivate a community in Kullu that is robust to climate change.

Literature Review

Climate risk assessment, management, and governance encompass a diverse array of subjects and aspects that are inherently linked to the environmental dynamics and policy framework of a specific geographical area. The objective of this literature review is to provide an overview of the current scholarly research on this broad subject, with a specific emphasis on the Kullu region in Himachal Pradesh.

Climate Risk Assessment

To gain a comprehensive understanding of climate risk assessment in Kullu, it is essential to consider the research conducted by Bhardwaj et al. (2011). Their study specifically examines the effects of climate on the ecosystems of Himachal Pradesh, with a special emphasis on the cold desert ecosystem found in the Kullu district. The research conducted by the authors provided valuable insights into the complex and deeply rooted vulnerabilities present in this specific location. It effectively identified and described the various climatic hazards that are unique to this geographical area.

In their study, Sharma and Tomar (2017) emphasized the importance of conducting comprehensive climate risk assessments in order to develop solutions that are both scientifically rigorous and tailored to the specific environmental conditions of the Himalayan region. The pilot study conducted by Simon Allen and his

colleagues, which was published in 2020, offers a significant contribution to the existing body of knowledge. A comprehensive risk study was undertaken to assess the potential risks associated with present and future temperatures, specifically focusing on the RCP4.5 and RCP8.5 climatic scenarios, with a particular emphasis on the mid-century timeframe. This study has successfully identified a comprehensive collection of 43 indicators for the blocks of Kullu, as well as 50 indicators for the villages of Anni and Banjar. These indicators play a crucial role in the recognition and evaluation of climatic threats (Allen et al., 2020).

Climate Risk Management

The discussion surrounding climate risk management is extensive and continuously developing. Singh and Singh (2017) emphasized the complex interconnections between climate change and its effects on the ecosystems of the Himalayan area. They argued for the immediate implementation of effective management techniques that are based on empirical data and local circumstances.

Moreover, the comprehensive report published by the Intergovernmental Panel on Climate Change (IPCC) in 2014 synthesized a variety of management strategies. This report emphasized the crucial need to combine scientific methodologies with traditional knowledge systems in order to develop adaptive and resilient strategies (IPCC, 2014).

The integrated study conducted as part of the Indian Himalayas Climate Adaptation Programme (IHCAP) sheds light on the imperative recognition of potential linkages among geological, cryospheric, and hydrometeorological risks in the Kullu area within the context of Climate Risk Management. This work holds significant importance in comprehending the potential compounding effects of diverse climate-induced dangers on the region (Kumar et al., 2022). Moreover, the initial phase of the Integrated Himalayan Cryosphere and Hydrosphere Observation Project (IHCAP) has successfully generated fresh baseline data on the cryosphere in the Kullu district. These data serve as a fundamental resource for conducting a primary evaluation of the potential hazards posed by glacial lake outburst floods (GLOFs) in both present and future scenarios. Consequently, this research significantly enhances the effectiveness of climate risk management strategies in the region (Huggel et al., 2020).

Issues and Practices in Governance

The topic of governance, especially in relation to climate change, occupies a significant position in academic discussions. Moser (2010) emphasized the importance of proficient communication within the context of climate governance, highlighting the vital role that well-informed and participatory governance systems have in cultivating resilient communities.

The discussion on governance also highlights the importance of policy frameworks that are inclusive and rooted in the unique culture context of Kullu. Sharma and Tomar (2017) proposed the adoption of a participatory governance

framework that promotes community engagement and operates in harmony, including contemporary scientific breakthroughs and traditional ecological knowledge. There is integrated pilot research that introduces a complete assessment approach, which stresses significant findings and explores the implications for climate change adaptation and disaster risk reduction in Kullu. This research is interesting as it presents possibilities for applying these analytical techniques to the broader Indian Himalayan Region (IHR). This provides a scalable strategy that could boost governance strategies across similar geographic areas (IHCAP, 2016).

Objective

The objectives of the research are as follows:

1. To conduct a detailed climate risk assessment in Kullu.
2. To evaluate the governance landscape in relation to climate policies.
3. To propose evidence-based climate risk management strategies.

Theoretical Framework

The utilization of a multidimensional theoretical framework in this study is the outcome of a meticulous amalgamation of theories and academic research that provides insight into the diverse aspects of climate risk in the Kullu region of Himachal Pradesh. The framework presented here is not simply a combination of abstract concepts, but rather a carefully constructed system that draws upon a diverse range of empirical studies, socio-ecological principles, and communication theories. These elements have been intricately woven together to effectively address the unique challenges associated with climate risk assessment, management, and governance in the region of Kullu. Figure 1 facilitates comprehension of

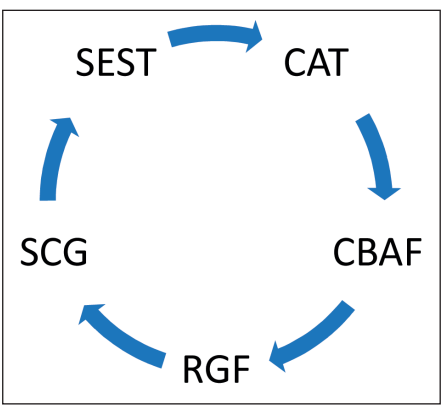


Figure 1. Cycle of Framework for Achieving Sustainable Climate Governance (SCG).

the interrelated stages and processes that are essential to our proposed framework for Sustainable Climate Governance (SCG).

Social-Ecological Systems Theory (SEST)

The theoretical underpinning of this paradigm is rooted on the SEST. The theory presented by Berkes et al. (2000) offers a comprehensive understanding of the interconnectedness between social and ecological systems. The selection was made based on its strong ability to clarify the intricate interconnections that define the socio-environmental relationship in the Kullu region. The literature review shed light on the interdependent connection between the ecological dynamics of Kullu and its social structures, highlighting the need for a comprehensive framework that can analyze and tackle these intricate relationships.

Communicative Action Theory (CAT)

Habermas (1984) established the CAT, which has been incorporated into the framework to leverage the researcher's proficiency in environmental communication. The selection of this theory was based on its strong focus on rational communication and its ability to promote mutual understanding and collaborative action within societal frameworks. Previous studies on the governance systems of Kullu have identified a requirement for a theoretical framework capable of critically examining and improving the communicative mechanisms operating within these systems.

Community-Based Adaptation Framework (CBAF)

The conscious decision to include the CBAF, as outlined by Reid et al. (2009), within the theoretical framework was motivated by the recognition that local knowledge and experiences play a crucial role in creating adaptive responses to climate threats. The inclusion of this component within the framework demonstrates a dedication to amplifying the perspectives and knowledge of local stakeholders, as highlighted in the first examination of relevant scholarly works. This recognition is essential for the development of enduring and efficient adaptation approaches in the region of Kullu.

Risk Governance Framework (RGF)

The multidimensional theoretical construct is completed by the RGF, as outlined by Renn (2008). The adaptation of this paradigm was prompted by the identified necessity for a comprehensive approach to risk management that integrates scientific inquiry and active stakeholder interaction. The previous study emphasized the significance of a governance system that is both scientifically rigorous and socially inclusive, while also being sensitive to the specific local context of Kullu.

The integration of various ideas into a coherent framework demonstrates the researcher's intention to develop a scholarly narrative that is academically rigorous and closely aligned with the actual experiences of the Kullu region. This study employs a theoretical framework to explore the intricate nature of climate risk, employing a systematic and inquiring methodology. The objective is to provide a valuable contribution to the enhancement of resilience in Kullu, particularly in response to climate-related difficulties. The framework has been developed through a comprehensive examination of existing scholarly works and the integration of several theoretical viewpoints, specifically selected for their pertinence and suitability in addressing the diverse components of climate risk within the region.

Methodology

Research Design

The research design employed in this study is exploratory in nature, with a focus on analyzing secondary data to examine the complexities associated with climate risk in the region of Kullu, located in Himachal Pradesh. The approach of this study is crucial in developing a comprehensive narrative that is supported by empirical evidence. It enables a thorough examination of existing literature and datasets that provide insights into the climate risk profile of the region.

Data Collection

The maintenance of methodological rigor in data gathering is achieved by employing a secondary database consisting of peer-reviewed scientific articles, government reports, and records from nongovernmental organizations. The database incorporates prominent databases like Web of Science, Scopus, and government archival records to guarantee the inclusion of highly credible and relevant data pertaining to the Kullu region. The reports produced by the IPCC are particularly noteworthy due to their comprehensive data and authoritative analysis of climate-related hazards and mitigation options. In a similar vein, the documentation provided by nongovernmental organizations presents a wealth of empirical data and invaluable perspectives on how communities are addressing climate concerns. This information is crucial for comprehending the techniques employed at the local level to adapt to these challenges. Figure 2 provides a clear, structured visualization of our research methodology, encapsulating the various stages of data collection, analysis, and interpretation which are pivotal to the comprehensiveness of this research.

Data Analysis

The secondary data acquired from these databases underwent a rigorous analytical procedure, starting with content analysis to identify patterns, themes, and significant

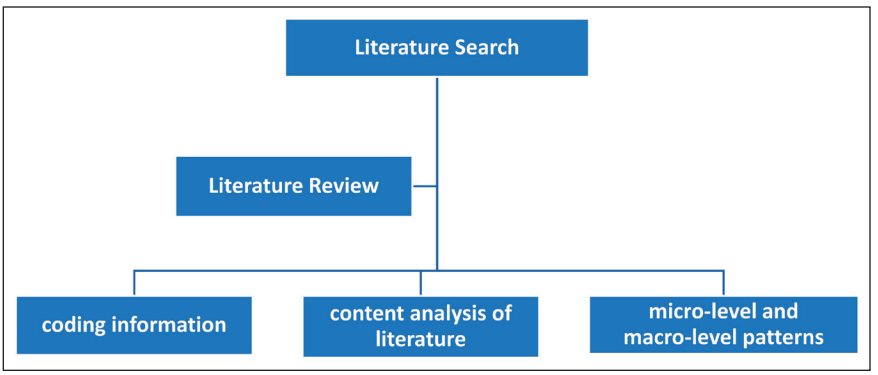


Figure 2. The Structure of Research Design.

observations. This procedural stage entails the methodical process of assigning codes and organizing data in a manner that is consistent with the goals and objectives of the research. After conducting a content analysis, we will utilize a comparative method to contrast the gathered data. This approach will aid in identifying similarities, differences, and patterns among various sources and time periods. The importance of doing such a comparison lies in its ability to provide a contextual framework for understanding the Kullu region in relation to wider discussions on climate risk.

The purpose of these methodological procedures is to incorporate micro-level specifics with macro-level patterns, guaranteeing that the research results are strong, extensive, and representative of both the distinct circumstances of Kullu and the fundamental principles of climate risk governance. The study seeks to provide a significant contribution to the scientific knowledge of climate risk assessment, management, and governance in the Kullu region by employing a methodical approach.

Findings and Analysis

Historical Climate Trends in Kullu

Temperature Variations

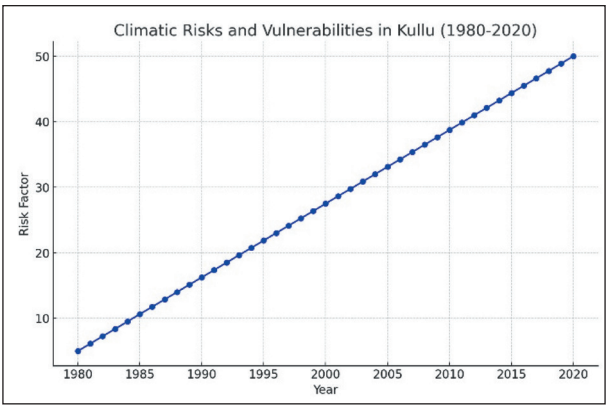
The extensive literature analysis conducted by Sharma and Tomar (2017) highlights a concerning increase in seasonal temperatures in the Kullu region over the past few decades. The observed phenomenon, distinguished by a gradual yet consistent upward trajectory, possesses the capacity to substantially modify the regional climate norm. The significant ramifications of the increasing temperatures are far-reaching, affecting not only the biodiversity and ecosystems of the region but also the socioeconomic structure of Kullu. These implications may manifest in altered agricultural cycles, heightened energy requirements, and increased health hazards.

Precipitation Patterns

The report released by the State Government of Himachal Pradesh in 2012 provides insights into the changing precipitation patterns, characterized by prolonged periods of limited rainfall and a decrease in snowfall. The observed changes in precipitation patterns serve as an indication of a more extensive shift in the hydrological systems within the region. The potential consequences of these alterations are significant, with the ability to disrupt water security, soil moisture levels, and subsequently causing a series of repercussions on agriculture, hydroelectric power generation, and the ecological systems that depend on consistent seasonal rainfall.

Climatic Risks and Vulnerabilities

The study conducted by Bhardwaj et al. (2011) examines various case studies that provide light on the escalating vulnerability to hydrological changes in the Kullu region. These case studies specifically emphasize a rise in the occurrence and severity of flash floods. These occurrences pose a risk not just to human populations and their means of subsistence but also to the preservation of natural environments and the biodiversity they sustain. The hydrological vulnerabilities discussed in this context give rise to the need for a reassessment of methods pertaining to land-use planning, infrastructure development, and disaster preparedness.



Graph 1. Graph of Climatic Risks and Vulnerabilities (1980–2020).

Graph 1 shows an increase in climatic risks such as floods and landslides over time. The risk factor, represented on the *y*-axis, increases from 1980 to 2020, indicating heightened vulnerability.

Table 1 illustrates the average annual temperature and total annual precipitation in Kullu from 1980 to 2020. The data indicate fluctuations in both temperature and precipitation over the years.

Table 1. Historical Climate Patterns in Kullu (1980–2020).

Year	Average Temperature (°c)	Total Precipitation (mm)
1980	11.15	1181.93
…	…	…
2020	13.63	944.73

Agricultural Impacts

Sharma and Tomar (2017) conducted an examination of the fluctuating climatic circumstances, which have resulted in a significant alteration in agricultural practices in the region of Kullu. In response to the increasing unpredictability of traditional crop cycles, farmers are embracing a more diverse approach to their agriculture practices. The implementation of strategic diversification is perceived as an adaptive measure in response to the uncertain nature of climatic variability. Its primary objective is to reduce the potential risks associated with food security and ensure the sustainability of agricultural livelihoods.

Existing Climate Risk Management Strategies

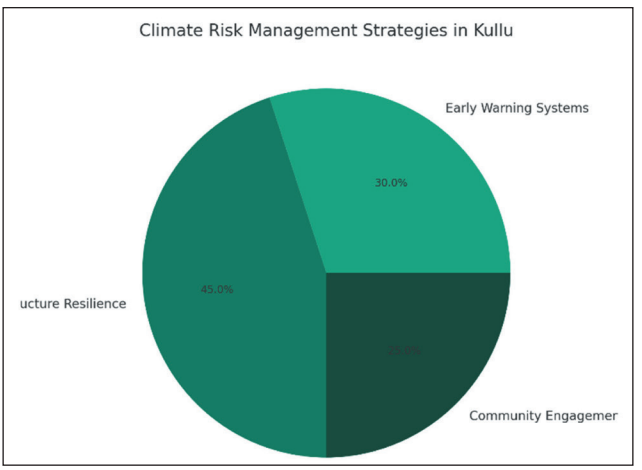


Chart 1. Distribution of Various Strategies.

The pie chart depicts the distribution of various strategies used in Kullu, including early warning systems, infrastructure resilience, and community engagement.

Early Warning Systems

The proactive use of early warning systems by regional authorities, as described in multiple publications, signifies their efforts to limit the risks posed by climatic adversities. According to the State Government of Himachal Pradesh (2012), it is

recognized that although these systems represent a positive development, they are still in their early stages and necessitate substantial progress in terms of technology, dissemination, and public awareness in order to attain their maximum effectiveness.

Infrastructure Resilience

A collaborative endeavor has been undertaken, as documented in scientific literature and nongovernmental organization publications, to promote the development of climate-resilient infrastructure in the region of Kullu. Notwithstanding the advancements made thus far, there exists a widely acknowledged imperative to enhance inclusivity and extend services, notably to geographically isolated regions. The implementation of such measures would contribute to a more balanced allocation of resources and the establishment of safety protocols, both of which are crucial for the long-term resilience of communities in the face of climate change (Bhardwaj et al., 2011).

Governance and Policy Dynamics

Table 2 lists key policies and plans along with their impact assessments. The policies include the Himachal Pradesh State Climate Plan, Kullu District Adaptation Program, and the National Climate Policy.

Policy Landscape

The current policy framework in Kullu is influenced by strategic initiatives, such as the Himachal Pradesh State Climate Change Strategy and Action Plan. This proposal represents a significant advancement in the establishment of a well-organized framework for climate risk governance. This strategy establishes a fundamental framework for a synchronized approach to addressing climate hazards by incorporating scientific knowledge and policy measures. Nevertheless, it is imperative that these strategies remain adaptable and consistently revised in order to incorporate the most recent scientific discoveries and real-world circumstances (State Government of Himachal Pradesh, 2012).

Community Engagement

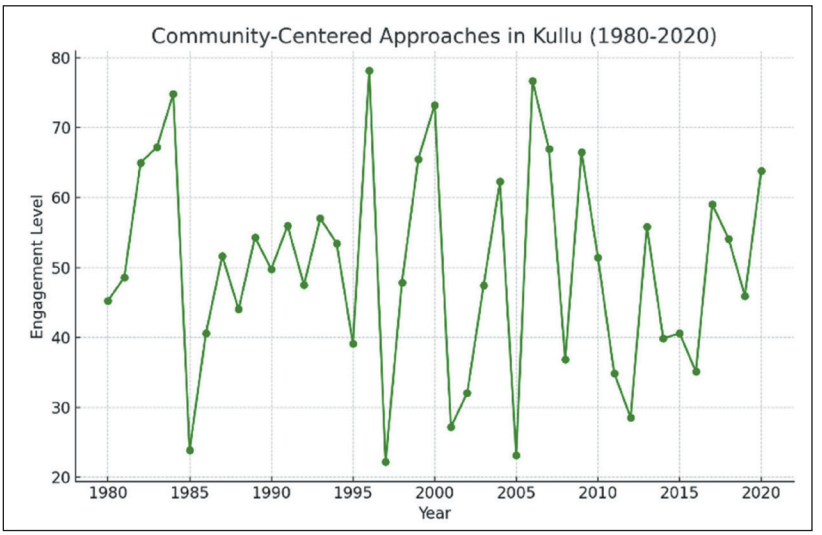
There has been a notable and positive trend observed in relation to heightened community involvement in governance procedures. The transition toward a decentralized and participatory governance framework facilitates inclusivity and

Table 2. Lists Key Policies and Plans.

Policy/Plan	Impact Assessment
HP State Climate Plan 1990	Moderate
Kullu District Adaptation Program 2005	Significant
National Climate Policy 2015	High

leverages local expertise in policy formulation. The importance of such participation lies in its ability to guarantee the cultural relevance, social acceptability, and successful implementation of climate adaptation methods (Sharma & Tomar, 2017).

Community-Centered Approaches



Graph 2. Community-Centered Approaches (1980–2020).

Graph 2 illustrates the level of community engagement in Kullu over time, highlighting an increasing trend in integrating community knowledge and participation in climate governance.

Traditional Knowledge

Bhardwaj et al. (2011) highlight the significant contribution of indigenous populations in Kullu through their research of community-based narratives, shedding light on the extensive traditional knowledge held by these communities. The knowledge that has been transmitted across generations possesses a wealth of ideas pertaining to sustainable living and adaptation strategies that have been carefully tailored to suit the specific environmental conditions of the region. The recognition and use of this knowledge into formal adaption strategies has the potential to offer resilient and contextually suitable solutions to the evolving climate problems.

Socioeconomic Factors

The community's ability to adapt to climate change is hindered by socioeconomic restrictions, including restricted access to education, low levels of income, and

inadequate health care facilities, despite the presence of a store of traditional wisdom. The research conducted by Sharma and Tomar (2017) emphasizes the pressing need to improve.

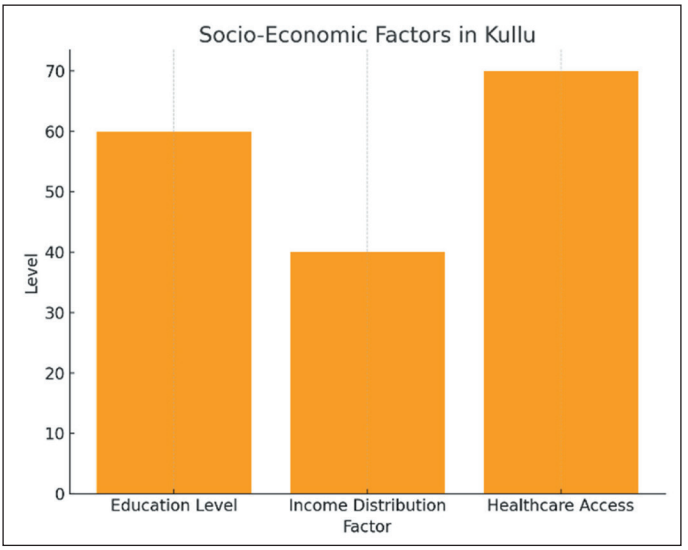


Chart 2. Socioeconomic Factors.

The bar chart represents various socioeconomic factors, like education level, income distribution, and health care access, showing their levels in the Kullu region.

Discussion

Addressing Historical Climate Trends

The Evolution of Climate Change as an Ongoing Phenomenon

According to Sharma and Tomar (2017), a careful examination of temperature and precipitation trends provides more evidence that the effects of climate change are becoming increasingly apparent in Kullu's natural setting. The researcher recommends that an ongoing longitudinal study be carried out in order to assist in the process of designing adaptive methods that are both dynamic and responsive to the shifting climate patterns.

Rethinking Water Resource Management

The changing patterns of precipitation make it abundantly clear that the management of the region's water resources need a fundamental reappraisal. According to statistics gathered from real-world experience (State Government of Himachal

Pradesh, 2012), the potential solution to the looming water issue may lie in the collection of rainfall and the development of environmentally friendly irrigation technologies.

Strategizing Against Climatic Risks and Vulnerabilities

Integrating Hydrological Risk Management

Alterations to hydrology pose significant dangers to the local ecosystems as well as the communities that depend on them. Utilizing the nuanced insights obtained from the case studies and empirical data investigated (Bhardwaj et al., 2011), it would be reasonable to integrate hydrological risk management within the larger framework for climate governance. This would be a pragmatic move.

Strengthening the Resilience of Agricultural Systems

According to Sharma and Tomar (2017), agricultural transitions necessitate the construction of resilience through the possible introduction of climate-resilient crop varieties and the promotion of community training programs to manage agricultural practices in a climate that is changing.

Evaluating the Current Climate Risk Management Strategies

Improving the Availability of Early Warning Systems

Even if early warning systems have been put into place, there is still room for significant improvement, possibly through the utilization of technical breakthroughs that will improve accuracy and reach (State Government of Himachal Pradesh, 2012).

Bridging Infrastructure Gaps

According to the findings of the study (Bhardwaj et al., 2011), there is an urgent need to close infrastructure gaps by promoting investments in climate-resilient infrastructure, guaranteeing inclusivity and equity in the distribution of resources and safety systems, and ensuring that all people have equal access to these things.

Governing for the Future

Policy Dynamics

Policy frameworks, such as the Himachal Pradesh State Climate Change Strategy and Action Plan, offer the groundwork for climate change response in the form of a foundational blueprint (State Government of Himachal Pradesh, 2012). The researcher advises that these frameworks should be evaluated and modified

frequently to accommodate developing climate realities and scientific understandings. This should be done on a regular basis.

Facilitating Community Engagement in Governance

According to Sharma and Tomar (2017), community engagement in governance not only promotes inclusivity but also makes use of local knowledge in policy articulations. This presents a paradigm of decentralized, participatory government that might be further cultivated and institutionalized.

Leveraging Community-Centered Approaches

Recognizing and Integrating Traditional Knowledge

In the process of developing strategies for sustainable adaptation, traditional knowledge emerges as an essential resource. According to Bhardwaj et al. (2011), the researcher supports the idea that there should be a determined effort made to document and incorporate this knowledge into mainstream policy and planning.

Structural Improvements to the Socioeconomic System

Last but not least, according to Sharma and Tomar (2017), it is essential to improve the socioeconomic fabric of the community through educational and economic interventions in order to establish a community that is robust to the changing climate. This will allow the community to fully harness its adaptive capacities.

Theoretical and Practical Implications

Theoretical Implications

Enrichment of Social-Ecological Systems Theory

The observed increases in temperature and alterations in precipitation patterns provide empirical support that enhances the SEST. The research findings provide empirical evidence that aligns with the theoretical proposition that societal and ecological systems are intricately linked, such that alterations in one system eventually exert an influence on the other. The theoretical implications encompass a refined comprehension of the ways in which climate factors impact these interdependencies, particularly within mountainous ecosystems.

Advancements in Communicative Action Theory

The study's findings about community engagement and the incorporation of traditional knowledge into climate risk governance make significant contributions to the field of CAT. The aforementioned statement highlights the significance of employing dialogic methods as a means to attain mutual comprehension and consensus in climate adaptation endeavors. Consequently, this contributes to the advancement of theoretical deliberations surrounding participatory governance.

Evolution of Risk Governance Frameworks

The findings concerning early warning systems and infrastructure resilience underscore the need for a multifaceted approach to risk governance that goes beyond traditional paradigms. The study posits that it is imperative for RGFs to possess a dynamic nature, encompassing the integration of technological advancements and the expansion of infrastructure.

Community-Based Adaptation (CBA) Framework

The study emphasizes the significant influence of socioeconomic factors on the effectiveness of community-based adaptation methodologies. Theoretical implications indicate that in order to enhance community resilience in an effective manner, the CBAF should incorporate socioeconomic growth.

Practical Implications

The findings of this study indicate the need for regular review and updating of policies, such as the Himachal Pradesh State Climate Change Strategy and Action Plan. This is necessary to incorporate the most recent empirical evidence and to ensure their adaptability to changing climate conditions.

The necessity for enhanced disaster planning and management techniques arises from the heightened occurrence of flash floods resulting from hydrological alterations. This entails the improvement of early warning systems and the implementation of public education initiatives in order to mitigate the susceptibility of local communities.

The alteration of agricultural practices requires the implementation of effective measures, such as the creation of crop varieties that can withstand climate changes and the provision of educational programs for farmers to adopt adaptive agricultural techniques. These interventions are crucial in safeguarding food security amid shifting climatic conditions.

The research advocates for a greater allocation of funds toward the development of infrastructure that is robust to climate change impacts. This should be done with a particular emphasis on promoting inclusion and ensuring equitable distribution of resources. Pragmatic strategies encompass bolstering the durability of current infrastructure and ensuring that forthcoming developments are conceived with careful regard for the implications of climate change.

The incorporation of traditional knowledge is advocated in this study, with a focus on documenting and integrating it into mainstream policies related to adaptation and risk management. The acquisition and application of this knowledge necessitate a methodical methodology for its capture and the establishment of mechanisms to effectively convert it into tangible and applicable solutions.

Socioeconomic enhancement is a crucial aspect of bolstering community adaptive capacity, as it involves tackling key concerns such as education, income, and access to health care. There is a pressing need for the implementation of pragmatic interventions aimed at enhancing the socioeconomic determinants. Such interventions would subsequently bolster the resilience of communities in the face of climate change.

Conclusion

Upon analyzing the complex array of climate risk scenarios presented in the research findings and accompanying debate, it becomes evident that Kullu, Himachal Pradesh, is currently facing a pivotal moment in its climatic trajectory. The researcher has conducted a thorough analysis based on empirical evidence and scholarly discussions, emphasizing the pressing need to confront the growing climate disaster in the region.

Climate Dynamics: A Historical and Contemporary Perspective

Based on the data, it is apparent that Kullu is experiencing a significant transformation in its climatic patterns, marked by rising temperatures and changing precipitation patterns. The evolving dynamics of the situation require a comprehensive reassessment and adjustment of current policies in order to maintain the fragile ecological equilibrium of the area (Sharma & Tomar, 2017).

Vulnerabilities and Risks in the Context of Security

The magnitude of vulnerabilities and dangers arising from hydrological alterations and agricultural consequences is substantial. The authors of the study (Bhardwaj et al., 2011) presented a well-reasoned debate advocating for the implementation of comprehensive risk management techniques that are both resilient and adaptable. These strategies aim to protect communities and enhance agricultural resilience in response to the persistent changes in climate.

The Development of Climate Risk Management Strategies

As elucidated in the discourse, it is crucial to augment the prevailing climate risk management methodologies, incorporating advanced early warning systems and infrastructure resilience. According to the researcher, it is crucial for these strategies to be based on scientific advancements and promote inclusivity, in order to prevent the remote areas from being marginalized in the climate action plan (State Government of Himachal Pradesh, 2012).

The Role of Governance and Community-Centric Approaches

From a governance standpoint, it is evident that the policy environment, albeit strong, needs to adapt dynamically to effectively integrate the evolving climate realities with great attention to detail. According to Sharma and Tomar (2017), the researcher supports the implementation of a governance framework that is adaptable and receptive, fostering active involvement from stakeholders and enabling more extensive community interactions. This approach aims to leverage the valuable resources of local knowledge and perspectives.

Prospects for Future Development

The researcher anticipates a future trajectory that is rooted in sustainable and community-centric methodologies. The utilization of ancient knowledge systems and the strengthening of the socioeconomic fabric are identified as crucial elements in this proposed trajectory. The researcher suggests that adopting an integrative approach that combines scientific expertise with traditional knowledge may lead to the development of a resilient and sustainable adaptation strategy in the region of Kullu.

In summary, this study provides a comprehensive analysis of the climate risk scenario in Kullu, Himachal Pradesh. Based on a thorough examination of secondary data, this study emphasizes the necessity of establishing a trajectory marked by accountable governance, advancements in scientific research, and active engagement from the community. The researcher anticipates that by thoroughly examining the various dimensions highlighted in this study, there is potential for Kullu to develop resilience and adaptability in the face of climate challenges. This could lead to a future where Kullu serves as a positive example of sustainable and harmonious coexistence with the natural environment.

Declaration of Conflicting Interests

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Article

How Fintechs are Aiding the Strategic Renewal of Banking and Financial Services When Climate and Corporate Governance are Centre Stage?

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Abstract

Banks and financial institutions have been experiencing slow growth after the financial crisis due to loss of trust, regulations, changing customers and digital disruption unleashed by fintechs. While the emergence of fintech is a global phenomenon, we are starting to see some standout banks collaborating efficiently with them to help self-renew themselves and, in turn, win back customers, improving margins, bolstering growth aided by data insights, simplifying operations and acting with speed to customer requirements. Enhancing scope and scale at speed supported by fintech collaboration is helping these banks to manage better uncertainty, front load benefits to end consumers, orchestrate capabilities, manage change and navigate the complexity associated with climate and corporate governance actions.

Keywords

FinTech, digital transformation, banking and financial services, startups, strategic renewal, corporate governance, climate change

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Introduction

The 2008–2009 financial crisis brought about an irreversible transformation in the financial industry's structure. A pervasive lack of consumer confidence in banking and financial products prevailed, prompting a widespread preference for cash over traditional financial instruments. This crisis-induced mistrust persisted beyond 2010, forcing banks and financial institutions to confront the challenge of regaining the trust of their customers. Simultaneously, the emergence of high-speed mobile internet and touch-enabled smartphones initiated a seismic shift in consumer preferences, while new regulatory measures further complicated the industry's dynamics. Climate and corporate governance issues began to take centre stage, reshaping financial institutions' operations.

The financial sector found a panacea in digital transformation catalysed by financial technology (fintech). It brought banking services just a click away from consumers, enabling them to access their accounts and perform many financial transactions. This self-service approach restored trust and bolstered confidence in financial institutions. For banks that had grappled with the aftermath of the crisis for several years, embracing fintech represented a means of strategic renewal. Strategic renewal, a concept now essential in the corporate world, involves adjustments to the strategic direction of an organization to ensure long-term competitiveness.

Recent research underscores the transformational impact of electronic and digital banking on the financial sector. Digitization enhanced cost control and profitability while facilitating an exponential increase in customer base and retention. Climate concerns, regulatory pressures, technological advancements, shifting customer expectations and competition from fintech entrants have made the financial industry question its long-term survival and evolving role.

The future for traditional retail banks appears uncertain, yet the blueprint for their survival might be found in industries like automotive, where transformative technologies have driven unprecedented innovation. Fintechs are redefining banking services worldwide, igniting revenue growth, and facilitating digital transformation. The omnipresence of digital technology, driven by fintech, is causing disruptions in various industries, urging incumbents to embrace offensive strategies that leverage digital capabilities. Global banks' recent strategic renewal initiatives have emphasized their vulnerability to change, driving them to collaborate with technology, media and telecom companies. As the industry continues to consolidate, the influence of fintech disruption in embracing change becomes increasingly evident.

In this article, we delve into how fintech has been instrumental in helping banks regain their growth trajectory and rebuild trust through digital transformation. We explore the diverse strategies employed by banks across the globe to leverage fintech. While local variations play a role, digital transformation through fintech is a global trend with standard best practices that large financial institutions have adopted to renew themselves strategically and remain relevant in a dynamic market. We also highlight the unique capabilities of fintech supporting strategic renewal and present an emerging framework for adoption, outlining imperatives for banks seeking to embark on their renewal journey. Climate and corporate governance are central themes intertwined with this transformation, making it an all-encompassing revolution in the financial sector.

Theoretical Background

In the financial crisis of 2008–2009, consumer confidence in banking and financial products was at an all-time low, with a majority holding cash rather than putting in any financial instruments. Though by 2010, the financial crisis was behind, banks and financial institutions were still grappling with customers' acceptance of financial instruments. Consumer preferences were changing, coupled with the emergence of high-speed mobile internet and touch-enabled phones. With new regulations coming in, financial institutions faced the dilemma of winning back trust and meeting changing customer requirements.

The digital transformation powered by fintech happened as a panacea for financial institutions. It brought the bank a click away from the customer; now, the customer can access his bank account and do almost everything he wishes. Self-serving was game-changing as it helped win back trust and gain confidence. Banks, struggling for 3–5 years post-financial crisis, started seeing fintechs as a means for strategic renewal.

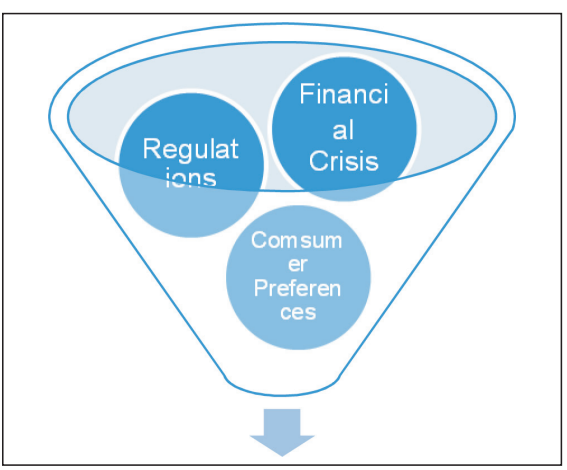

Figure 1. Consumer Trust Deficit with Banks.

Strategic renewal has become an essential theme in today's time with traditional firms looking to reinvent and reinvigorate themselves with significant new disruptions coming either from new competitors or technologies or ecosystem-related changes, which makes them do a course correction or change the way they used to operate before (Chaola et al., 2015). Strategic renewal involves initiating change and achieving a shift in strategic direction that can ultimately shape the long-term competitive position of a firm, often leading to a fundamental alteration of the original foundation (Schmitt et al., 2018). Banks which were historically struggling by adopting digital technologies powered by fintech not only helped self-serve customers but also increased the profitability of banks by making the existing staff focus on playing more of an advisory role and thus assisting banks to grow.

A recent study (Gautam, 2012) revealed how electronic and digital banking had helped banks and financial institutions leapfrog competition by improving profitability and margins. Digitization has helped them have much stronger control over cost and enable them to earn near-term profits. This transformation from traditional to digital banking has helped banks gain a significant competitive advantage, helping them increase their customer base manifold and providing a much more accessible platform for retention. Global banks like HSBC have started piloting smartwatches for mobile banking and are conducting pilots with technology providers in this space (Maras, 2018). A lot of this has been achieved through innovative alliances with fintech players or, in some instances, acquiring those to leapfrog the learning curve quickly and offer innovative digital services to its customers. Emirates NBD bank has been partnering with fintech firms to enable biometric-based logging capability and using mobiles to seamlessly ease cheque deposit facilities, saving precious time (Al-Zubaidi, 2021). Resource fit analysis of external demands and resource/capability mix has helped provide a pioneering framework to evaluate how digital transformation is helping clients grow and stay relevant (Liu, Chen, & Chou, 2011). The financial services sector is undergoing significant shifts, from ever-increasing regulatory pressures to rapid changes in technology, changes in customer expectations and loss of business revenue to new entrants (e.g. fintechs). The sector has faced sluggish growth since the last financial crisis, and traditional organizations are experiencing high cost/income ratios due to capital and human-intensive processes and lower levels of automation and digital enablement. How will the traditional institutions—retail banks—survive for the next 100 years? What does the future hold, and do they all become platform and technology companies with a banking license? How will their business model evolve, and what role will technology play in this transformation at an industry level? Banks and financial institutions, while heavily consumer-focused, can take examples from traditional industries that have leapfrogged into the digital age. A case in point is the automobile industry, where Tesla Model S off-the-air updates allow Tesla to offer superior customer service and experience at scope, scale and speed never imagined before.

Effective corporate governance hugely impacts the banking industry's response to climate change (Furrer et al., 2012). This significantly impacts policies, sustainable investment practices and risk management. The role of the

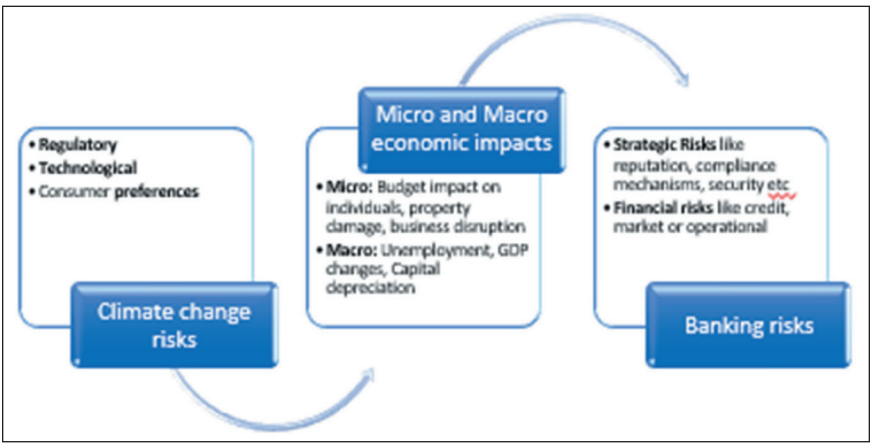

Figure 2. Climate Change to Banking Risks.

chief executive, leadership, board of directors and the various regulatory bodies has become of immense importance (De Andres & Vallelado, 2008). They play a pivotal role in ensuring environmentally friendly decision-making in banking institutions.

Green fintech has been gaining ground, especially in the Western economies. Puschmann et al. (2020) discusses how fintech in Switzerland has facilitated the movement to a low-carbon green economy. The entire spectrum of green financing, carbon neutrality through sustainable investment practices and leveraging digital platforms to promote climate-friendly banking and financial services is gaining ground across the globe. This also significantly has become a phenomenon where banks are increasingly seeing it to renew themselves strategically to be relevant and, at the same time, be environmentally conservative.

Fintechs are helping reinvent services offered by banks across the globe, increasing the global retail banking revenues, the digital concept implementation of banks and the digital transformation of these banks in retailing service. An offensive strategy utilizing fintechs involves disrupting existing processes and systems and aggressively moving to new digital models. Companies following the offensive play are reporting superior earnings growth. Incumbents are reluctant to overhaul legacy systems due to inertia, and the ability to orchestrate and be strategic about the change can strain already constrained resources and lead to their nemesis.

The last few years have seen some major strategic renewal exercises conducted by global banks as they have concluded that they are no longer immune to change. The increased adoption of mobiles, e-commerce and live interactions has led the financial services industry to increasingly collaborate with technology, media and telecom companies to continue strategic renewal. Financial services industry consolidation has been going on for some years. It is gathering steam, especially in the last few years, with fintech disruption playing a pivotal role in banks embracing change.

Research Objective

This article discusses how fintechs have helped banks get back to growth and win trust by digitally transforming them with green, environmentally conducive priorities. The article's research objective is to dive deep into how fintechs are aiding strategic renewal in banks in the context of climate change and corporate governance. Banks have taken various routes to leverage fintechs, and as part of this research, we have covered banks across the globe as it is a global phenomenon rather than being restricted to a region. What we also notice is that while local nuances do play an important role, the phenomenon of leveraging fintechs for digital transformation to transform operations is more of a worldwide phenomenon with certain standard best practices that these large financial institutions have adopted to be successful in strategically renewing themselves in this carbon sensitive market and stay relevant. We also find unique capabilities of fintechs supporting strategic renewal and showcasing an emerging framework for adoption and imperatives for banks as they look to join the bandwagon for renewing themselves and doing right ethically and in an eco-friendly way.

Methodology

As a part of the research exercise, the first step was narrowing down on a research question that has yet to be delved into much literature but offers scope for enhancement and enlightenment of academia. While stand-alone, we find research on the strategic renewal of banks and fintech evolution; there have been only peripheral studies on how fintechs are fuelling a strategic revival in banks. As part of the search strategy for doing a focused search, we used the SPICE (Setting, Perspective, Intervention, Comparison, Evaluation) model. All medium to large-size banks across the globe, pure-play fintech and technology-driven digital natives present across towers like fintech, insuretech and agritech were part of the inclusion criteria. Coverage ensures that all large regions are covered. Excluded from the search were small size banks (< $100 million in revenues), Chinese and Japanese banks; while some of them are large, not much information is available on them in English; recently formed banks, that is, telecom players getting banking licenses are not part of the search. As part of the strategic literature review, several databases were evaluated, these included EBSCO, Web of Science, Venture Intelligence-M&A, Financial Times, Elsevier.

Also, a detailed systematic literature review was conducted. The broader context of this study is to investigate how banks' strategic renewal is aided by fintechs when corporate governance and climate actions are centre stage. A systematic literature review is conducted to help support the interpretation of all available research on a specific area or phenomenon of interest (Kitchenham et al., 2009). A systematic literature review serves to unveil new perspectives and unexplored domains within studies. This method facilitates the accumulation of evidence from research across diverse contextual settings and enables the extraction of informed insights. The systematic literature review is typically structured around three distinct phases: planning, conducting and reporting the review.

The planning phase in this context involved elaborating on the research, establishing the protocol and validating the review protocol. The protocol, serving as a set of guidelines, aimed to mitigate bias in the study by delineating the conduct of the systematic review and specifying the criteria for study selection. As per the defined protocol for this systematic literature review, previous primary research has been limited to top management journals, with a focus on strategic renewal in banks across various context settings such as climate change and sustainability.

Following the definition of the selection criteria, the subsequent stage involved meticulous and practical screening to ensure alignment of the selected studies with the area of interest, strictly adhering to the established protocol and criteria to manage the review process effectively. This process was carried out by thoroughly reviewing the abstracts of the articles (Gopalakrishnan & Ganeshkumar, 2013). The primary objective during this process was to uphold the comprehensiveness of the review. To achieve this, the broad criteria included considerations such as content relevance, language, publication in esteemed journals and the number of citations to gauge the extent of influence. By applying practical screening methods, the initial list was effectively narrowed down to lesser number of articles that met the specified criteria.

In the subsequent stage, a quality appraisal of the refined articles was undertaken to ensure compliance with minimum quality criteria and to assign a quality score to each article (Gioia, 2021). The output of the systematic literature review is directly influenced by the quality of the included articles, hence the importance of this step. Quantitative appraisal of the study involved a comprehensive assessment of an article's data collection methodology, analysis, results and conclusions. Conversely, qualitative appraisal utilized a broader assessment of the claims presented, the evidence supporting these claims and the substantiation of the evidence. Following this rigorous quality check, the number of articles was further reduced, resulting in a manageable list of 50 articles for the review (Kitchenham et al., 2009).

During the data extraction stage, the extraction of information from each article played a vital role in providing the input for detailed synthesis. The synthesis

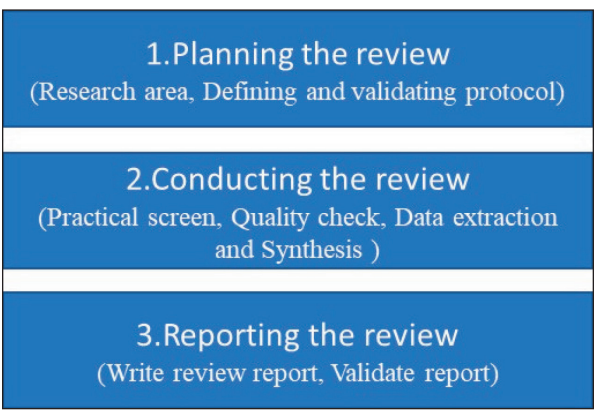

Figure 3. Systematic Literature Review.

phase involved the aggregation, organization and comparison of articles to elucidate emerging themes and patterns from the various studies, aiding in the refinement of the research criteria. In the final step, the review was composed to report the findings and disclose any unexpected results or novel ideas for future research (Aznoli & Navimipour, 2017).

Examined studies which met the criteria laid above, specific precaution on the point that banks we narrow down on have had strategic renewal fuelled by fintechs. Following both the SPICE method and detailed systematic literature review led to us narrowing down on five banks where such phenomenon has played, and the routes taken by them to engage fintechs keeping in line with corporate governance and climate change requirements. Data was extracted on the banks displaying this phenomenon, and broader themes emerged from this related data were looked at to conceptualize and arrive at the framework and provide recommendations for a practice where clear arguments backed by quality evidence emerged.

Findings: Collaborating with Fintech to Grow and Better Serve Customers

Routes Taken by Banks to Engage Fintech and Expand the Ecosystem

Banks are taking various ways to infuse innovation in the firms to remain competitive and relevant. Looking at the last few years, most major banks have increased their engagement with fintechs. Banks have been engaging with fintechs in multiple ways. Broadly, these routes can be classified into:

1. Partnerships and alliances,
2. Investment in early-stage startups and fintechs,
3. Acquisitions and
4. Organically seeding corporate venturing effort to seed fintech by hiring the expertise.

We analysed several leading banks using systemic literature review and SPICE methodology; we covered banking leaders across the globe to ensure this is a global phenomenon. While we looked at several banks as part of the study, we narrowed it down to five banks: Akbank, ABN AMRO, BBVA, BNY Mellon and ICICI as they have shown the most willingness in their regions to collaborate and harness agility, which is brought by fintech and also had highlighted environmental conservation as a priority. These took all the above-defined routes to market, and we highlight that through examples as we go deeper into each of the ways.

Route 1: Partnerships

The first and foremost path banks take is to build alliances and partnerships with leading fintechs to leapfrog on technologies, that is, Akbank partnered with Ripple for blockchain infrastructure and Daon for face recognition technologies to enable it to act quickly and offer superior customer experience. It has simplified its operations by building phygital branches, a mobile sales force and harvesting massive

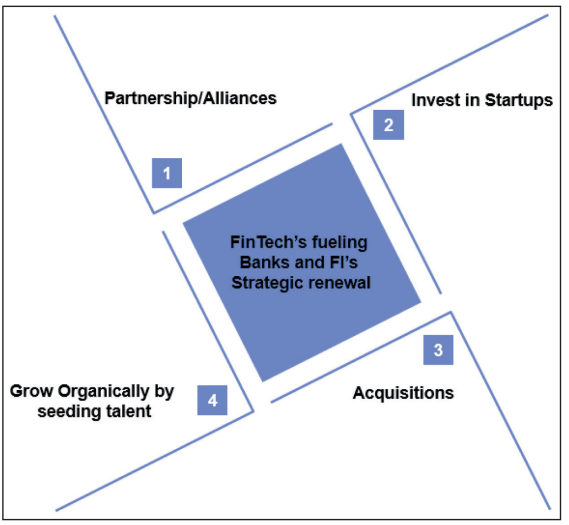

Figure 4. Routes to Engage Fintechs.

data to make frictionless customer journeys and channel optimization. This has led to a robust 30% increase in year-over-year income for Akbank and an increase in customer base by 4.2 million (+32%) over the last five years by front-loading benefits to the end customer.

The European banking industry has witnessed significant changes after the financial crisis, Brexit and Euro depreciation. These changes have affected the structure of the operations, along with how these changes can have a multiplier effect through interaction and reinforcement. When it comes to strategic renewal, attitude and how fast you can move directly impact renewal projects, Rabobank has uniquely pioneered how it utilizes innovation processes to respond and anticipate changes in a more predictable way (Smits & Groeneveld, 2001). Rabobank has had a history of being a leader in innovation. It was one of the few banks globally to recognize the power of online banking to build an organizational structure and buffers against environmental turbulence (Hensmans et al., 2001). Through its innovation focus, Rabobank could perceive competition from KPN DT (incumbent telecom players who evolved into payment banks). It was able to offer its customers many more functionalities and features through partnerships with fintech by running marquee programs like Rabo Frontier Ventures Rabobank Innovation Fund. It has also partnered with the leading trading platform. Trade for a blockchain project and Peaks, an investment app to help cattle farmers track herds with mobile tracking technology leveraging data insights and simplifying how it operates. This has aided Rabobank to significantly improve its profitability, with net profits increasing by over 50% in the last five years.

BNY Mellon has partnered with Volante for pay-tech innovation by creating and deploying technology to ensure real-time payments in the US and internationally; it also has partnered with likes of The Clearing House to ensure real-time payments and Zelle for peer-to-peer payments successfully. BNY Mellon

showed +18% growth in operating Earning per Share (EPS) with a healthy 6% growth in revenue and 9% in pre-tax income.

ICICI has been at the forefront of embracing digital change and was one of the first Indian banks to leverage design thinking workshops leveraging IDEO methodology to enable digital transformation (Adhikari & Ghosh, 2022). By partnering with fintech, they want to provide superior customer service, improve financial services, delight customers and have a robust control mechanism to meet all regulatory requirements (Bhutani, 2014). It has recently partnered with IndoStar to finance commercial vehicles and target small and medium fleet owners. It has also partnered with Open Financial Technologies Pvt Ltd to create and deploy an integrated payments platform for micro, small and medium enterprises. Innovating through partnerships also shows up in results, with fee income growing 15% year-over-year and operating profit improving by 17% year-over-year in 2019.

Route 2: Investment in Fintechs

Not to miss the fintech blitz, central banks have also started investing in early-stage fintechs to leapfrog the technology curve and be able to offer services at speed and simplify their operations. For BBVA's corporate entrepreneurship division, BBVA Ventures has, over the years, continued to be an innovator by actively investing in disruptive technologies, that is, SumUp, which enables point-of-sale payments through mobile; Radius, which is gaining significant ground in the US by providing business analytics and insights to SME businesses; Freemonee, which customizes and creates relevant offers from retailers by analysing transaction data and Ribbit Capital, which fintech-focused Venture Capital (VC) initiative. These partnerships and investments over the years have provided significant data-driven insights that simplified how it serves its customers at speed; this has helped BBVA leapfrog competition and shows up in promising results, with gross income going up by 4.3% and net attributable profit up by close to 78%.

Rabobank is injecting an additional €80 million into its venture fund, effectively doubling Rabo Frontier Ventures' commitment to €150 million, thereby providing the opportunity to broaden its investment focus to global hubs. It has recently invested in an early-stage startup facility that provides an accounting tool for freelancers, making accounting extremely easy for entrepreneurs. It has also invested in KOMGO, which is helping move commodity trade to blockchain and thus providing a fully decentralized solution for data exchange to the industry. Also, it recently announced a tie-up with Facturis Online to help move the entire invoicing process online and make seamless and faster-making operations simple and agile with the customer at the centre of the solution.

ICICI Bank has invested over 100 crores (Sharma, 2013) in the last few years to make early-stage investments in fintech. One of the critical investments is Fingpay, which allows merchants to accept payments through biometric technology, and Arteria, which offers supply chain solutions on Cloud and payments.

Route 3: Acquisitions

We have also begun to see some acquisitions by the leading players to give them an edge over the competition. BBVA has been a first mover in this space, and

seeing the widespread adoption of mobile and ease of internet availability, it acquired a leading fintech, an American online banking platform, Simple, as part of its digital transformation and showed how it significantly improved its digital properties and gained a significant advantage by this buyout (Wisniewski, 2014).

> Simple will reinforce our global digital transformation while BBVA will provide the ways and means to help Simple maximize its strong growth potential. —BBVA Chairman & CEO, Francisco González
> Source: BBVA.com.

Route 4: Organically Seeding Corporate Venturing Effort to Seed Fintech Expertise

Witnessing the kind of growth that fintech has seen, most central banks have started internal ventures and corporate initiatives, carving out units that are much more entrepreneurial and customer-facing than traditional banks have begun. We look at some of the key initiatives the five banks, mentioned earlier, took.

Akbank had a legacy of being the best in financial services in Turkey (Erol et al., 2013), but it very quickly realized that for it to continue to maintain its position and reputation in the digital era, it had to strategically renew itself very quickly for continued dominance and relevance with its customers. Through Akbank Labs and periodic hackathons, it has started offering innovative solutions and products with collaboration from fintechs and regularly conducting proof of concepts with startups to further partnerships. It has started offering digital banking services under Akbank Direkt, providing real-time financial services. BBVA continues to renew itself by thinking ahead of the curve and innovating to serve its customers. As stated by its CEO:

> We innovate to serve a client that is changing. —Eduardo Torres-Llos
> Source: BBVA.com.

The bank was a first mover concerning digital transformation in the markets it operates and continues to report a healthy increase in customers using its digital channels, offering almost 95% of its services through the digital channel as of date, translating into better customer service and results for the bank overall.

> Digital transformation is having a positive impact on our business and is ensuring the sustainability of results in the future, as evidenced in terms of growth, transactionality, productivity and efficiency. —OnurGenc, CEO of BBVA
> Source: BBVA.com.

Not so long before, CEO Francisco Gonzalez had predicted that many banks might fail for not undergoing a digital transformation and highlighted the adoption of digital banking technology by BBVA as of 2015.

Through its growth and innovation-focused arm, Teckle, Rabobank has been helping startups scale and partner and has now expanded its presence across the Netherlands. Further, Rabobank has launched a €60 million VC fund through

its RABO Frontier Ventures to proactively incubate some of these technologies internally to offer its customers quicker service.

BNY Mellon has, in a way, 'platformed' the financial services industry by coming together with a much simpler digital platform where both its employees and customers are contributing to building the landscape and initiating services without building them up from scratch and improving effectiveness in the financial market through usage of digital technology.

Fintech innovation significantly impacts Indian banks, with fintech at the forefront of bringing cutting-edge technology and click-click business models to the 125 crores+ aspiring and prospering Indian diaspora. Since the reforms started in 1991, Indian banks have continued on a consistent transformation journey post-liberalization, privatization and globalization. They are constantly seeking best practices from the Western world and offering products and services to their consumers (Rani & Rani, 2018). ICICI bank has been aggressively opening innovation labs, taking the organic route to fintech adoption, investing smartly in promising fintech startups and partnering with them to build and innovate cutting-edge digital technologies (ICICI fintech). It has also spearheaded a software robotics initiative in-house and moved to process a million transactions onto software robots, automating almost 20% of its transactions.

> We want to be digital at the core, remove the paper and as many people as possible and have end-to-end processes driven by technology. —B. Madhivanan, Chief Technology Officer, ICICI
> Source: ICICI.COM.

Table 1. Summary of Key Banks and Routes to Engage Fintechs with Crucial Impact on Financial Results.

Bank	Partnerships	Acquisitions	Investments	Corporate Venturing	Key Financial Results (YOY)
Akbank	•			•	30% YOY income growth (2019–2018), 32% increase in customer base last 5 years.
BBVA	•	•	•	•	Gross income grew by 4.3%, profitability by 78%.
RABO	•		•	•	Net profit increase by 50% over last 5 years.
BNY Mellon	•			•	+18% growth in operating EPS, 6% growth in revenue and 9% increase in pre-tax income.
ICICI	•		•	•	+15% income growth and 17% operating profit growth YOY.

As we saw, while some banks took all the available routes to market, some focused on specific routes to leverage fintechs and bolster results. All the leading banks showed improvement across the reported financial parameters compared to previous years aided by fintechs.

An Emerging Framework for Adoption

As we saw from the above examples, banks have taken various routes to engage with fintech and have shown strong uptake concerning the financial results. The standouts have collaborated with fintech to leverage data insights better, act with speed and agility to delight customers and massively simplify how they operate to deal with complexity; this has aided banks in strategically renewing themselves in the changing market dynamics.

The key imperatives which emerge from this adoption on how fintech aid the strategic renewal of banks collaborating successfully.

Imperatives for the Adoption of Fintech: Aiding Strategic Renewal of Banks by

- Helping banks deal with uncertainty and unforeseen events that will change the direction, sequence and solution components.
- Providing regular and front-loaded benefits to get them out of current difficulty and fund future change.
- Helping banks navigate change imperatives on multiple fronts in the 'today' world.
- Enabling multiple strategic objectives and vision elements in the 'future' and 'tomorrow' worlds.

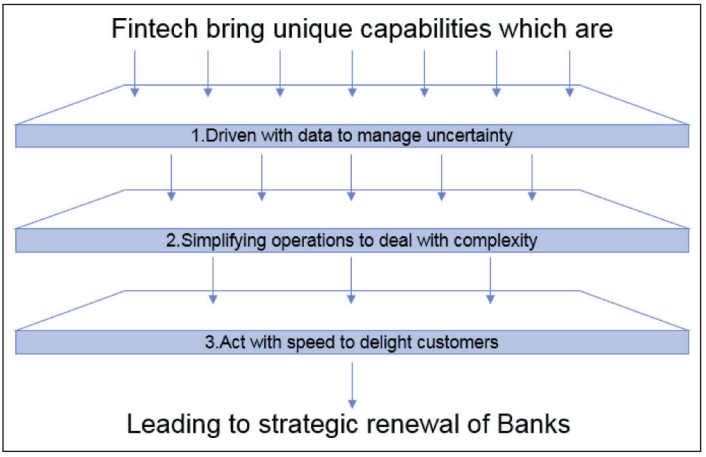

Figure 5. Emerging Framework.

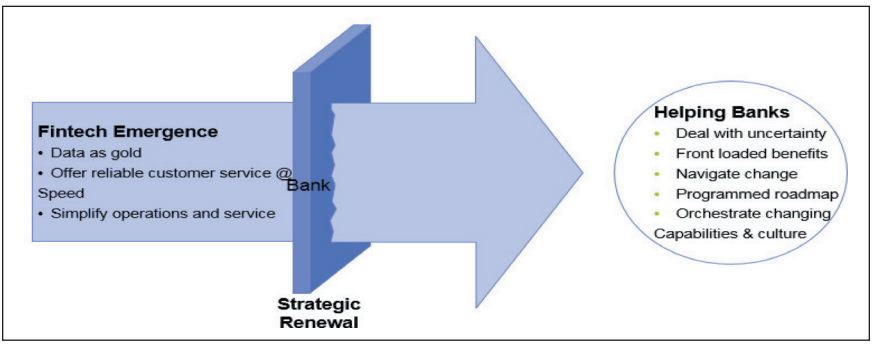

Figure 6. Imperatives for Adoption by Fintech.

- Helping design a programmatic roadmap to navigate the complexity.
- Orchestrating changing capability and culture arising out of the way the transform

Discussion and Implications

Global financial institutions have realized the potential of fintech and how it helps them operate efficiently and offer better customer experience. However, most of them face an uphill task with digital disruptors or digital natives and how they completely change the way they do business. From the insights drawn from above, we find banks and financial institutions have either learned, built alliances or acquired these digital disruptors (fintechs). Banks have also begun to strongly appreciate how these fintechs, aka digital native companies built on data and focus on business intelligence, follow where the data leads, are relentless about designing and improving the client experience, and move quickly with speed improving things on the go. The article also highlights how fintech aids corporate governance and climate change actions. While financial institutions traditionally have been bureaucratic and slow, adopting and working closely with these fintechs is no longer a choice but a compulsion to stay in the game. We see a few emerging points from these leading banks that have successfully engaged with fintech as follows:

- An evident appreciation of data as the new gold and significantly leveraging data analysis and insights for decision-making. With data being spread across servers and crossing geographic boundaries, leading institutions are working to bring actionable insights by creating a common platform for information. This has also helped support the theme of carbon neutrality, as financial data and insights are available at the touch of a button.

- Simplified the way they operate and service clients. Some of the best-in-class financial institutions have moved almost 95% of services to the self-serve model in an easily accessible and digestible mode in a transparent manner. The trust deficit banks have witnessed the post-2008 crisis through the power of digital and information availability. This goes a long way in returning consumer trust through an appropriately governed mechanism.
- Continued to offer reliable services at speed. It is important to remember that adoption does not compromise reliability over speed. It is both which the successful firms have implemented; this has been a reason for the successful adopters to renew themselves strategically.

Conclusion

While several banks appreciate the lead of adopting fintech and the power it brings to the consumer, very few banks and financial institutions have embraced fintechs. They are using it to provide superior customer service. While technologies, including Cloud, analytics, security and blockchain, are all-pervasive, most of the senior executives in the banks need to be prepared and more knowledgeable on how this transformation will take place. The benefits of adopting digital or partnering with fintech only happen if you look beyond technology adoption and listen to making your organizational structure nimble and carbon-neutral and building a network of relationships across the ecosystem. Banks and financial institutions looking to adopt or partner with fintechs should not limit their thinking to the current environment but must see how it impacts future operating models. The network of relationships, also called ecosystems, is the key to the digital world. How you collaborate with technology startups or large digital companies is fundamental to how well you can tread the path of digital transformation, offering the needed transparency. By 2025, if not sooner, most banks and financial institutions will find digitization at the core of everything they do. The future of banking and financial services is to embrace scope, scale and speed, leveraging and collaborating with technology startups, partnering, acquiring or investing in them not only to gain a first-mover advantage but also to gain a mover advantage at size and scope by building simplified internal processes which recognize and respond to customers to this change. Banks and financial institutions that appreciate the power of technology and connectivity and leverage scale, scope and speed will outshine the journey to the digital future, witnessing exponential growth while being on the right side of corporate governance and climate action.

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